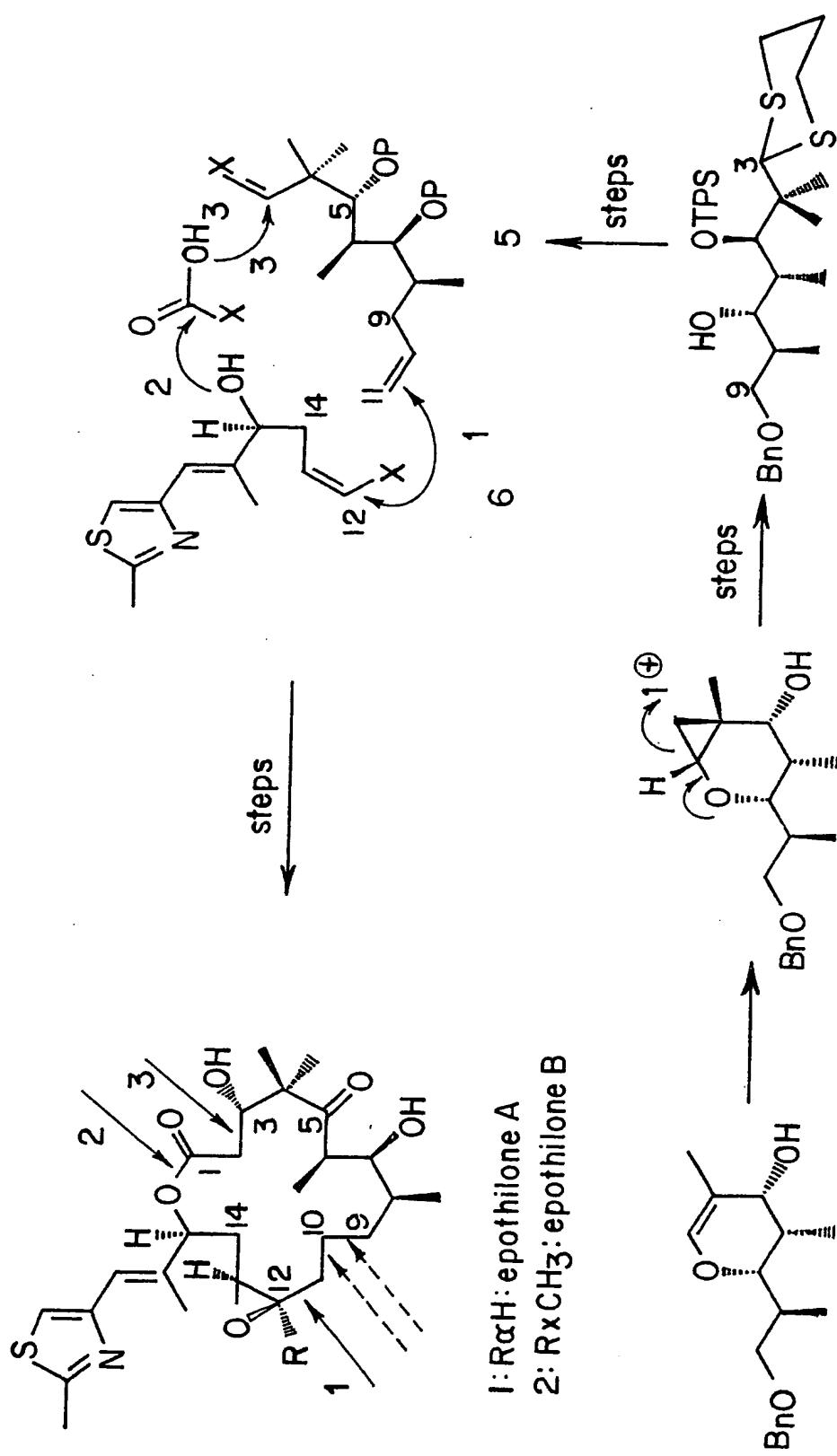


FIG. IA



— B.

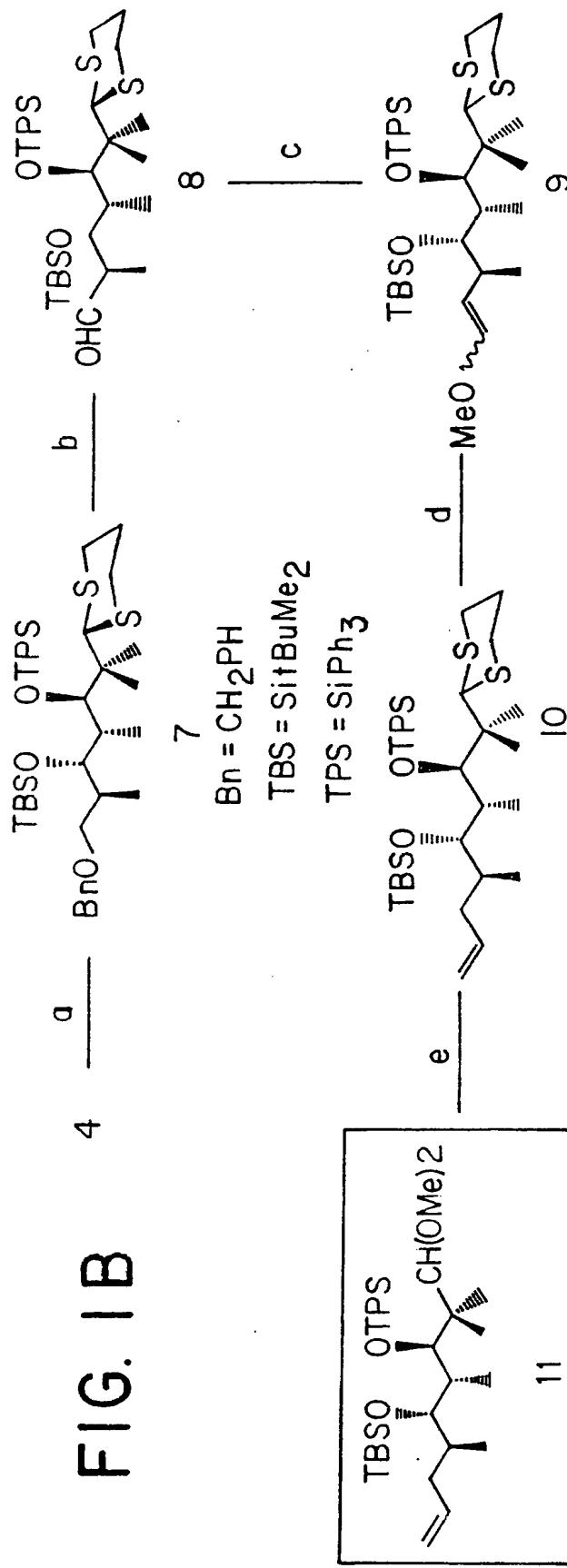


FIG. 12A

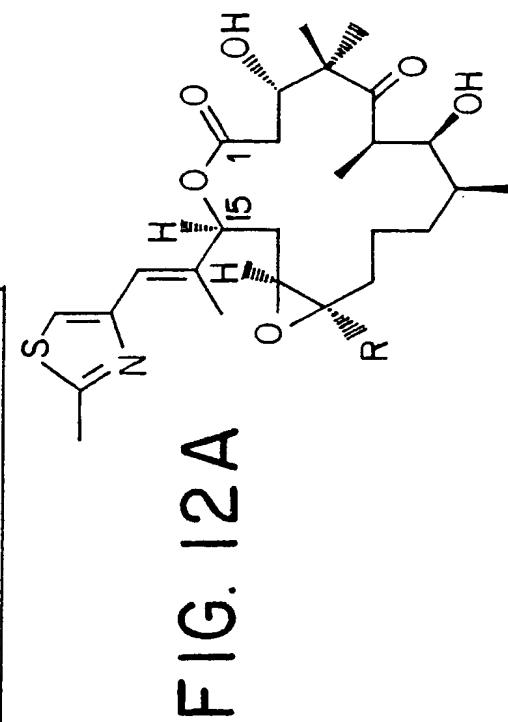
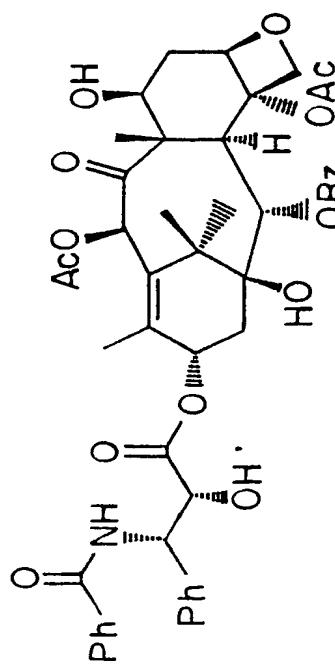
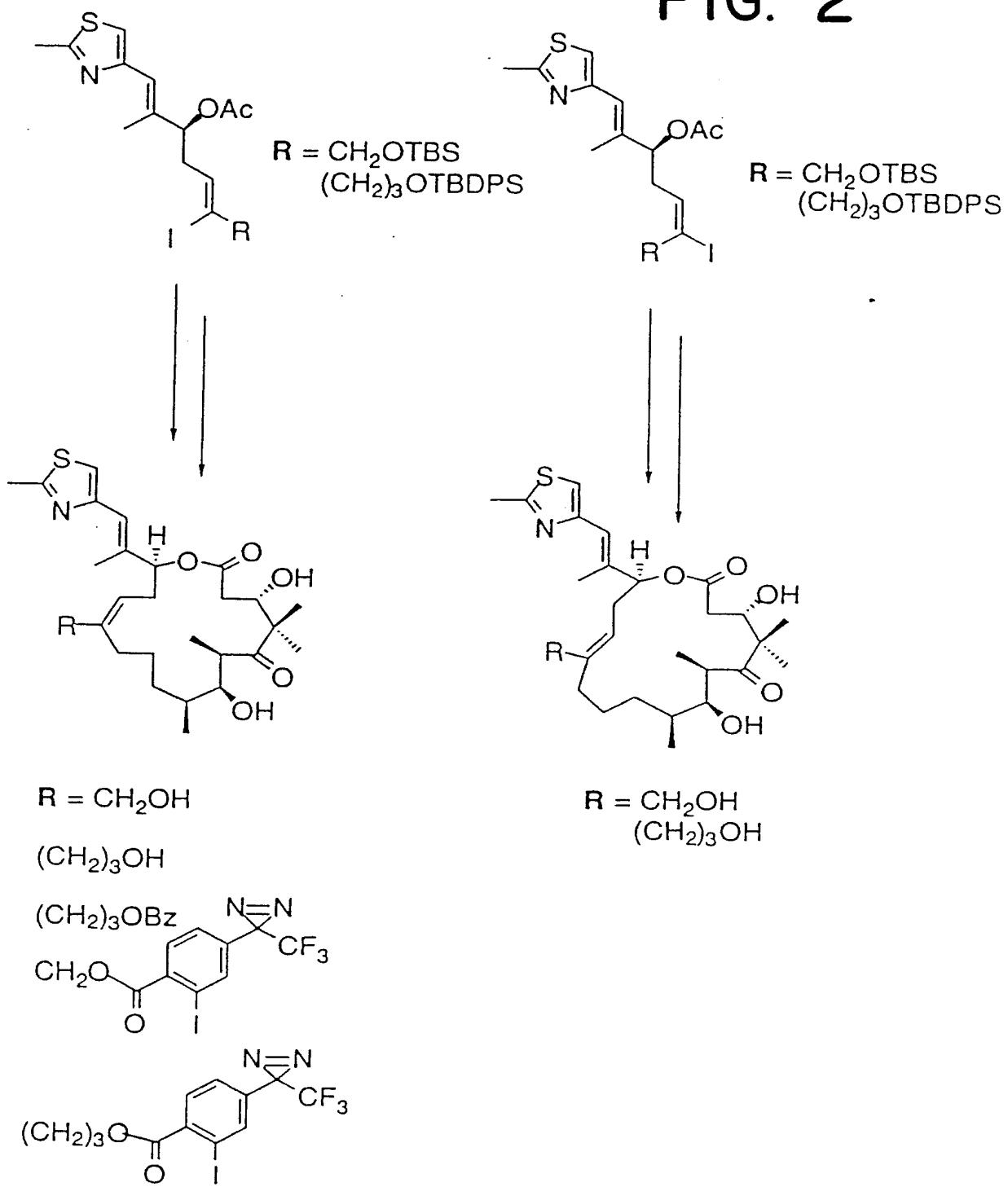


FIG. -2B



R = H: epothilone A
R = CH₃: epothilone B

FIG. 2



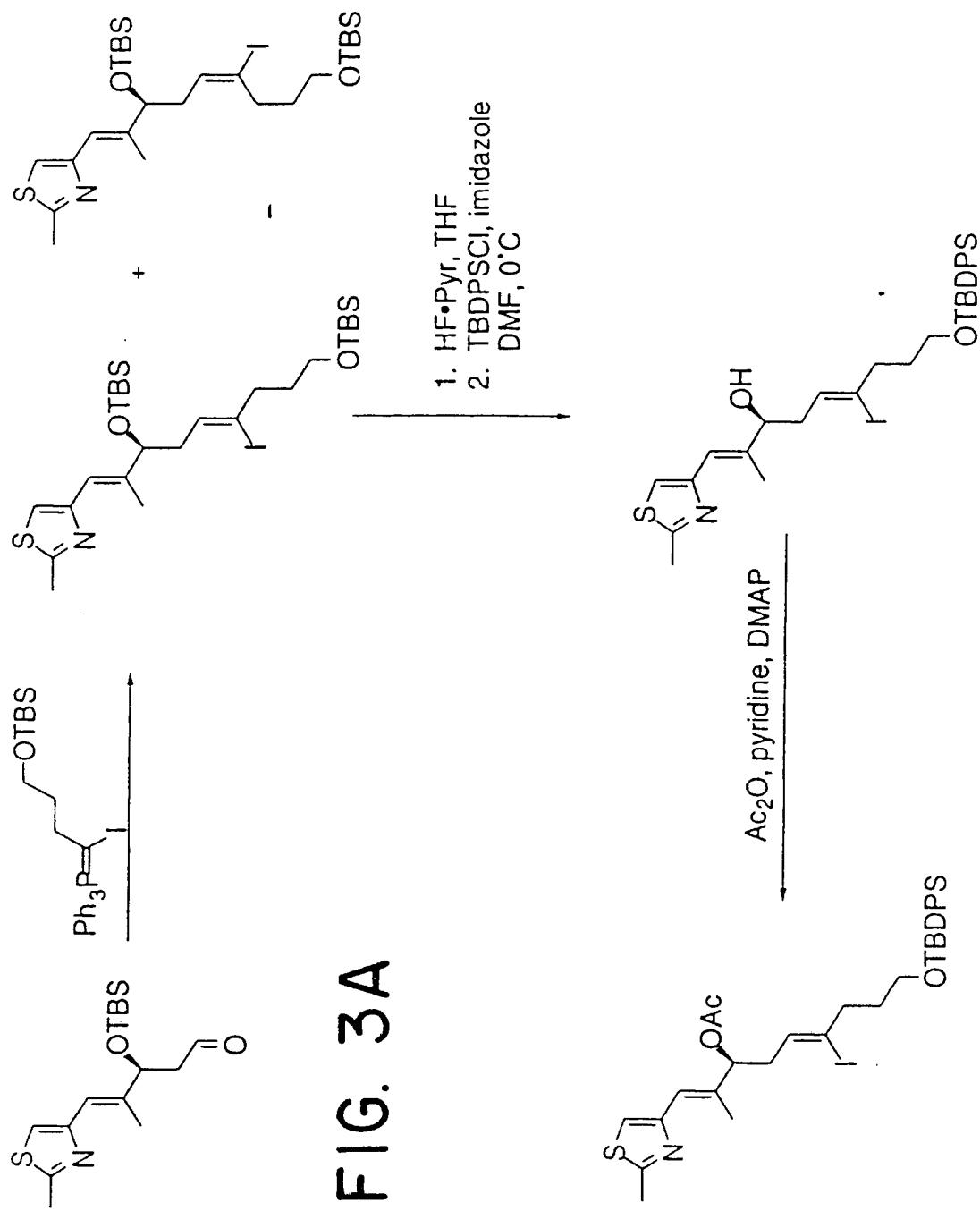


FIG. 3B

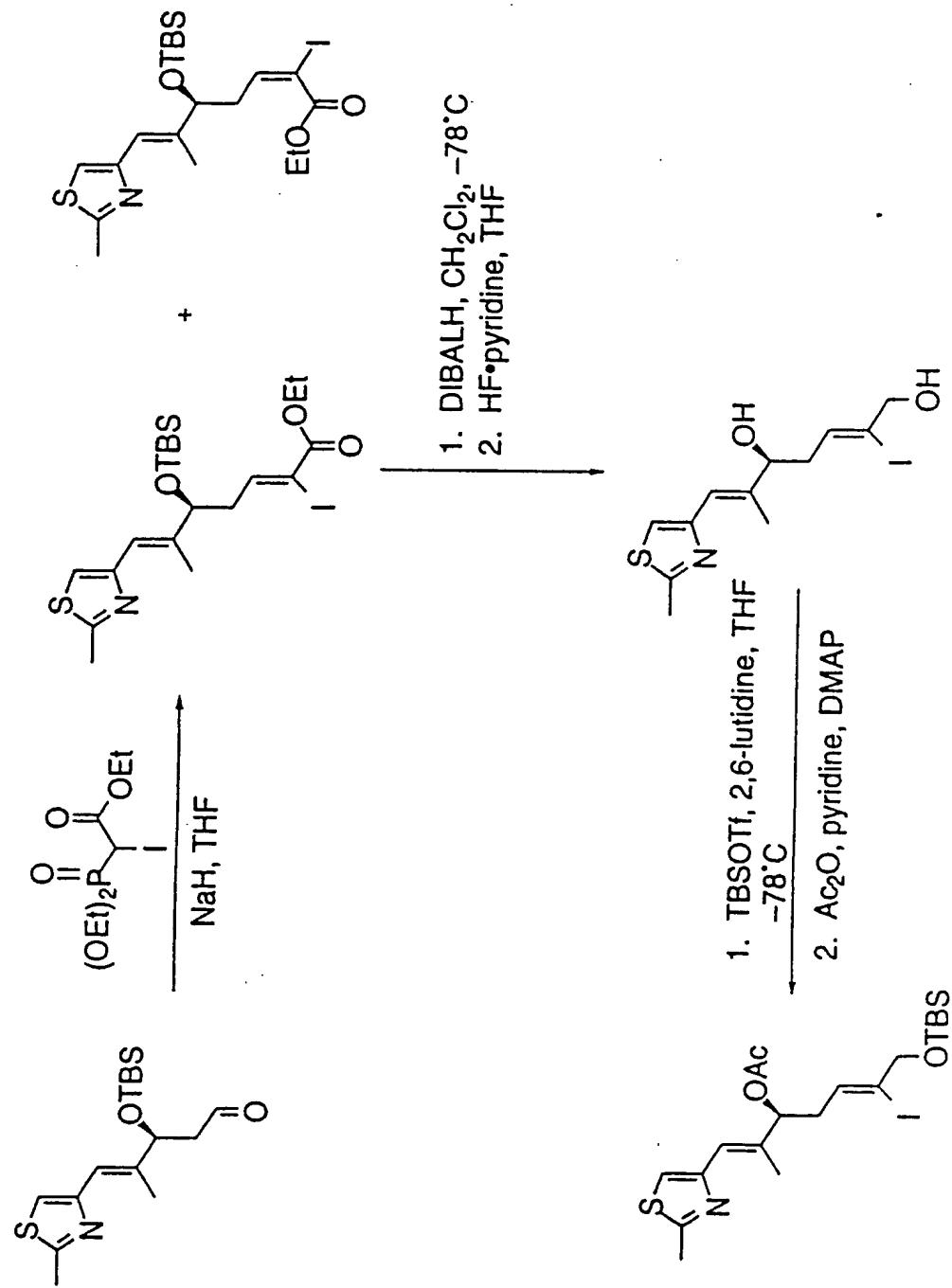
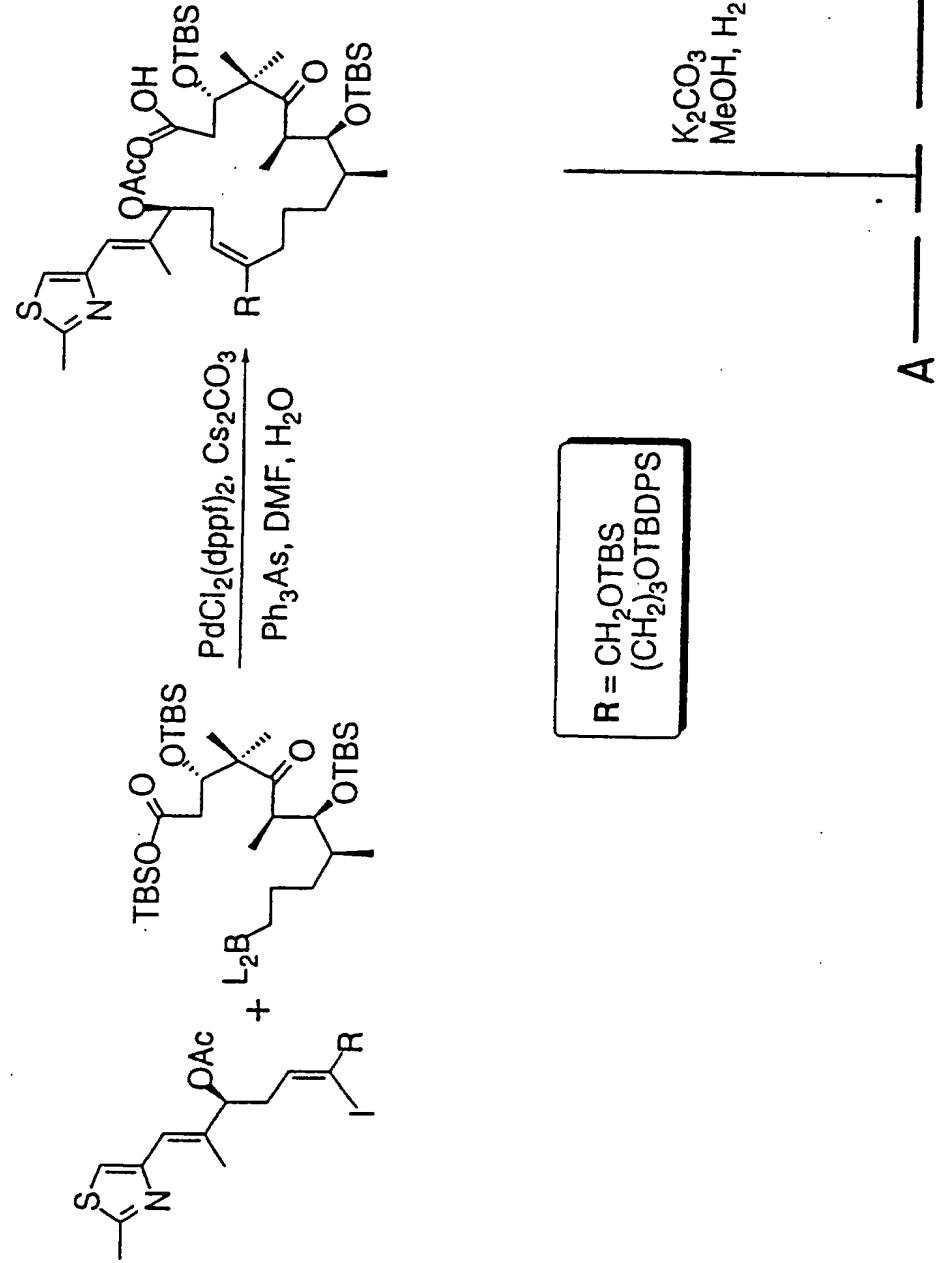


FIG. 3C



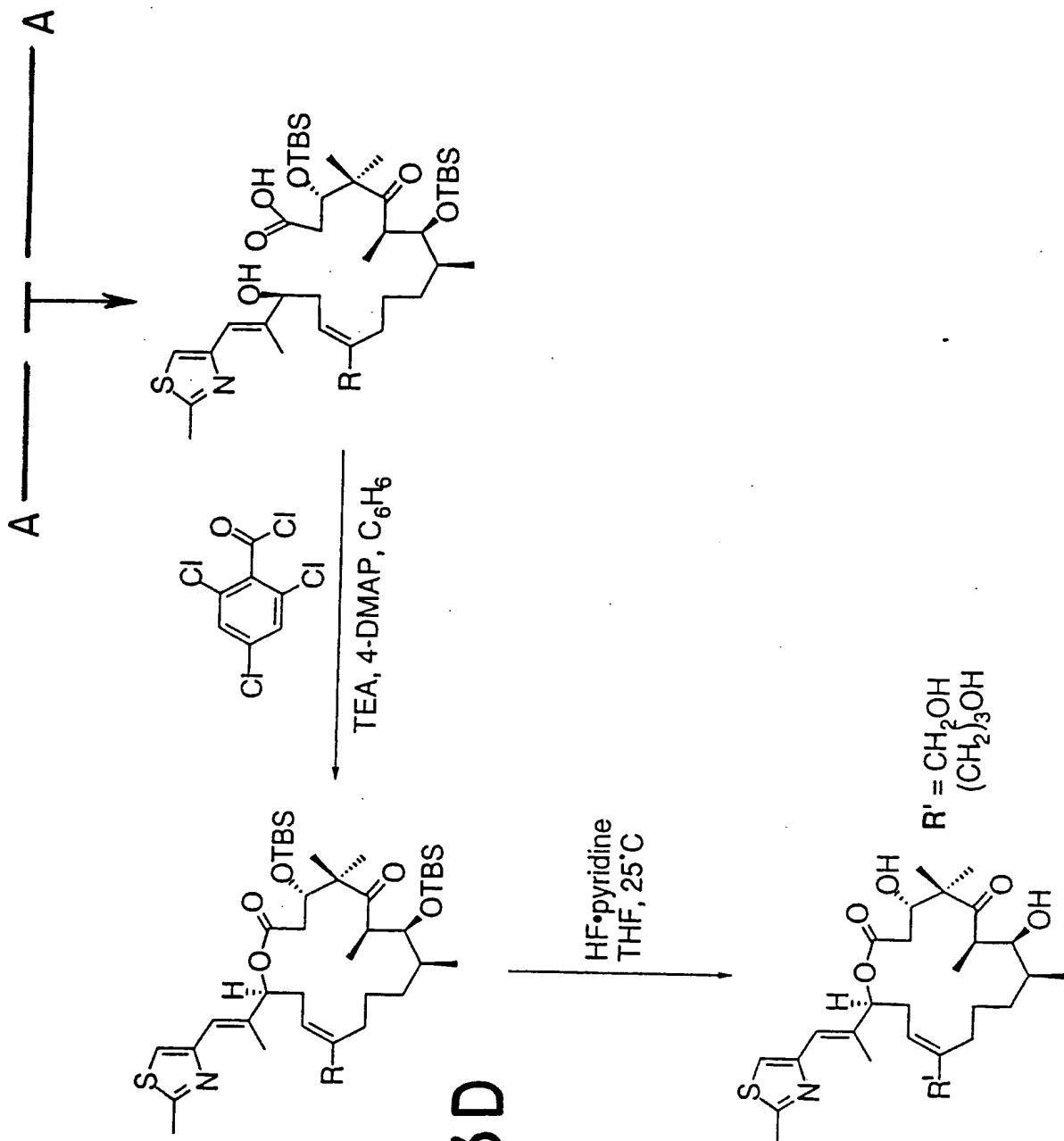


FIG. 3D

FIG. 3E

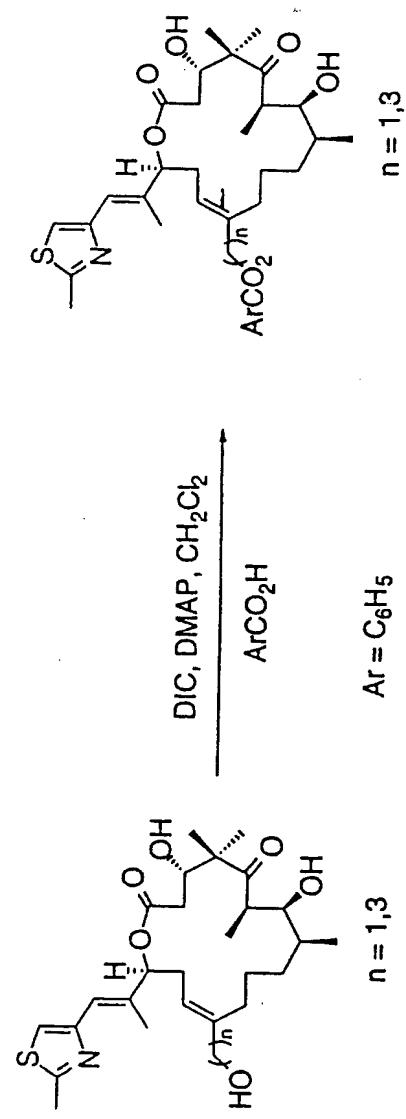


FIG. 3F

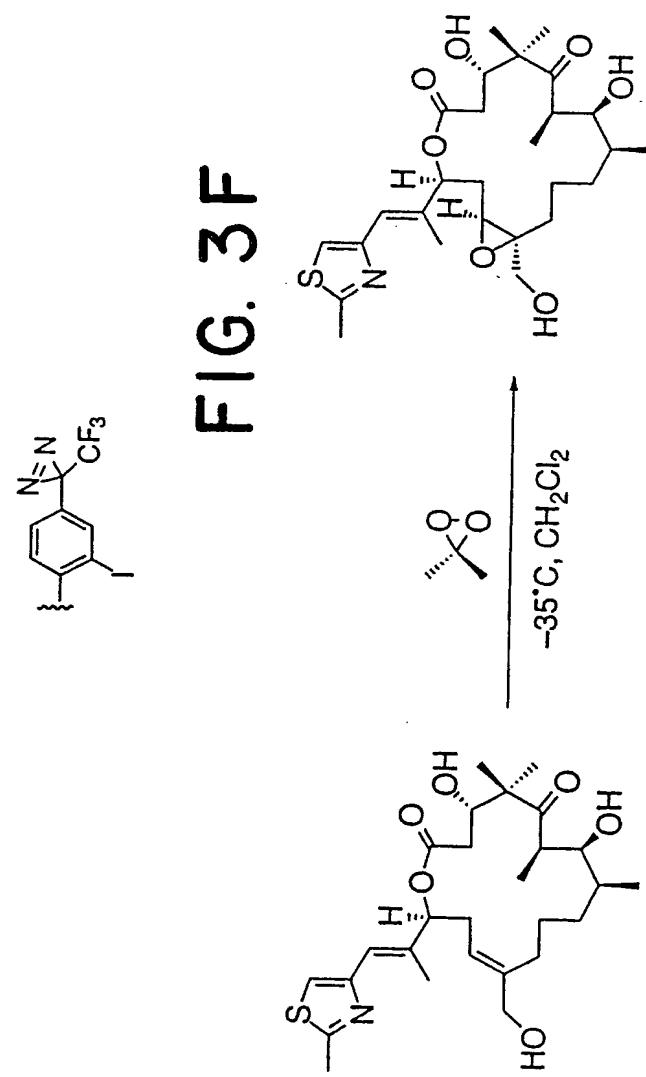


FIG. 4 A


 - [2]: R = H: (R)-glycidol
 - [3]: R = THP

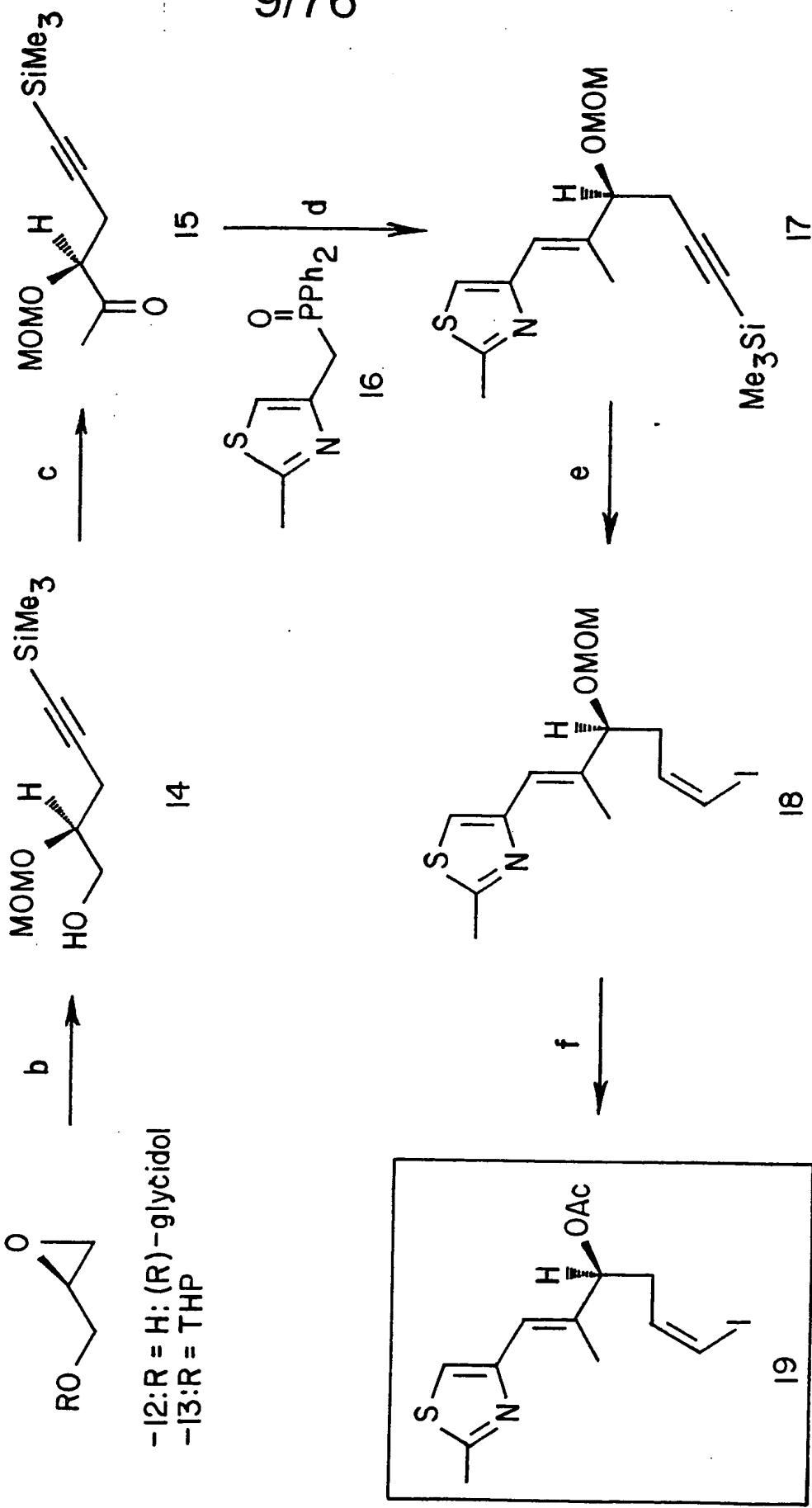


FIG. 4B

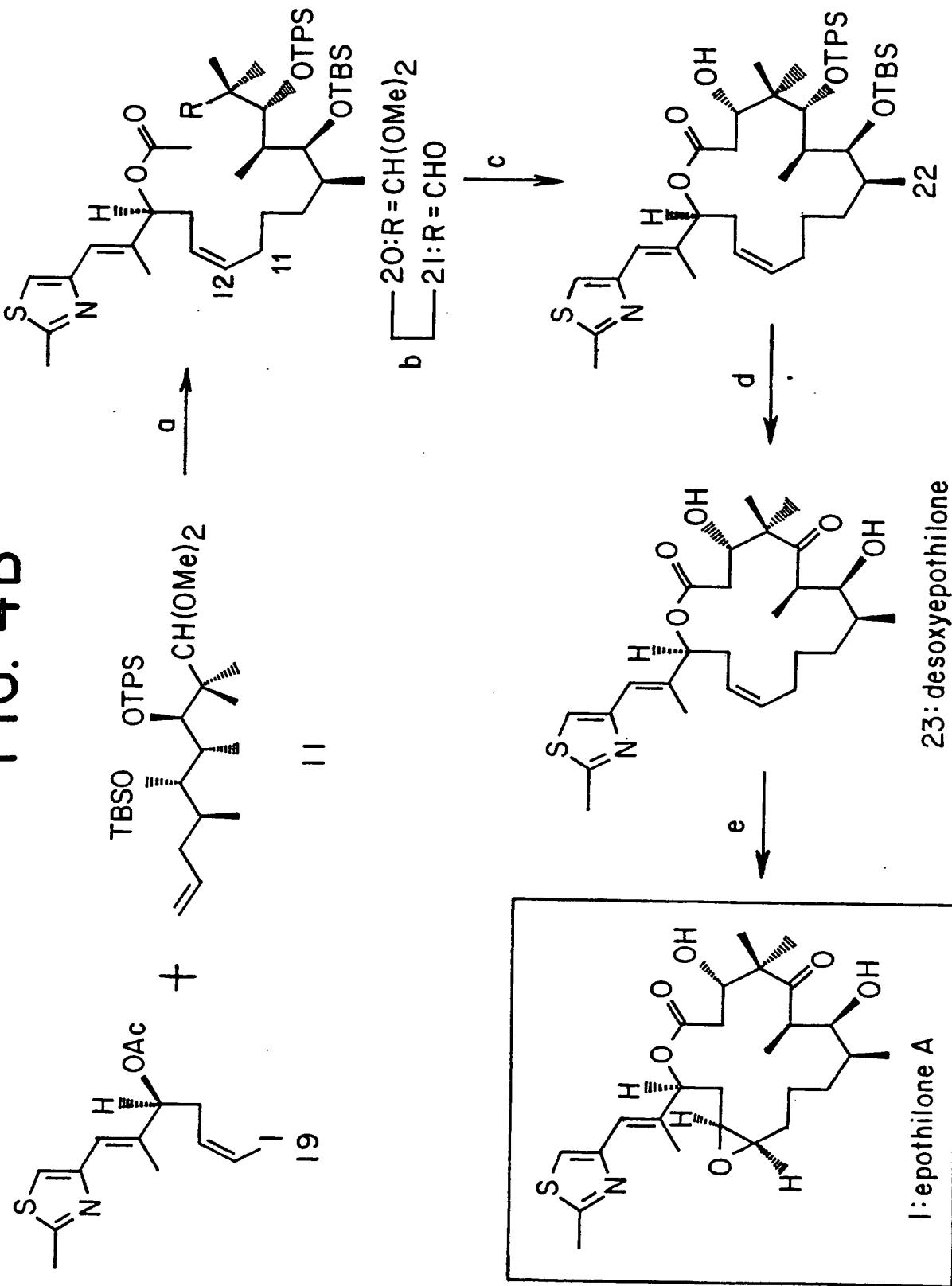


FIG. 5

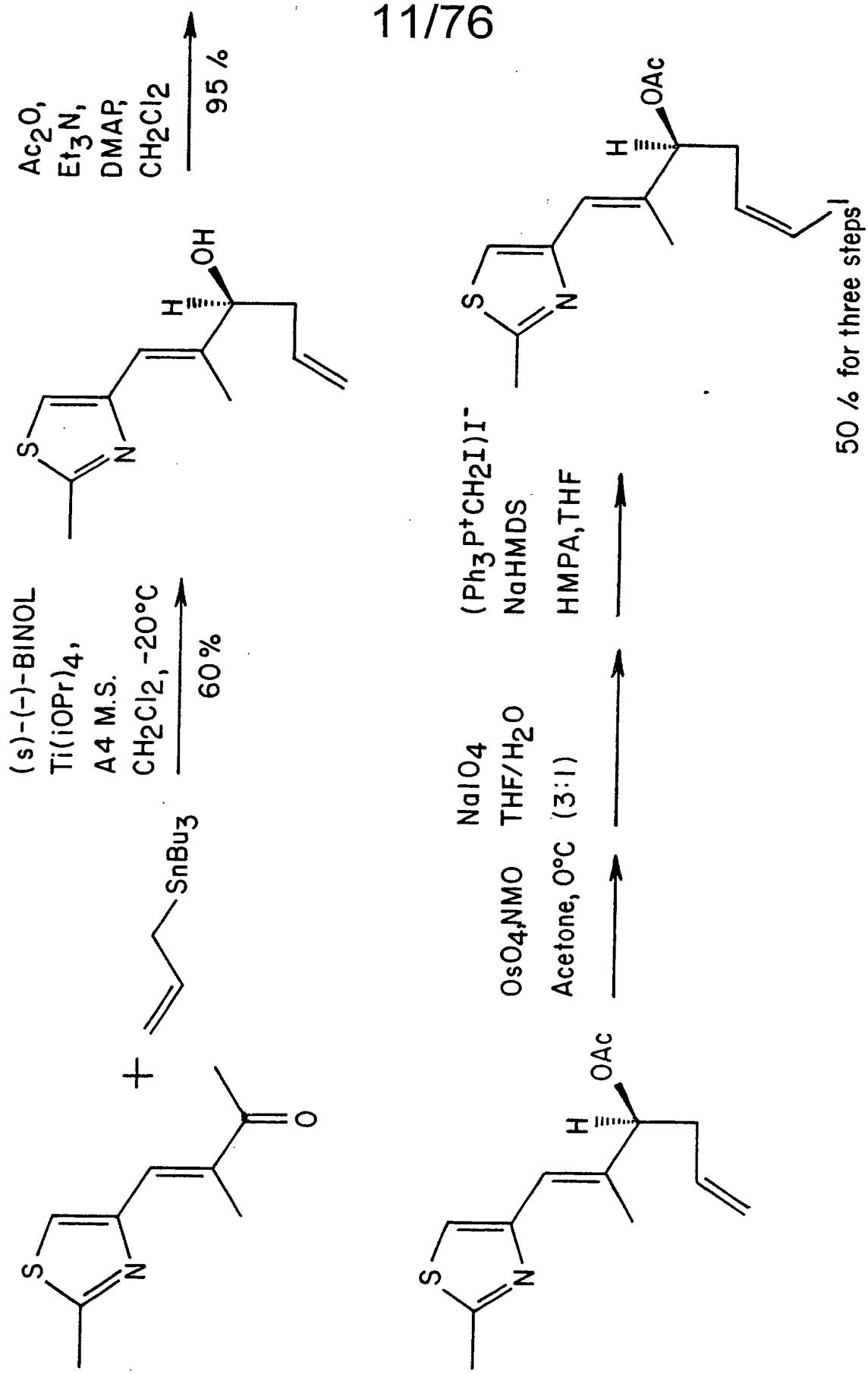


FIG. 6A

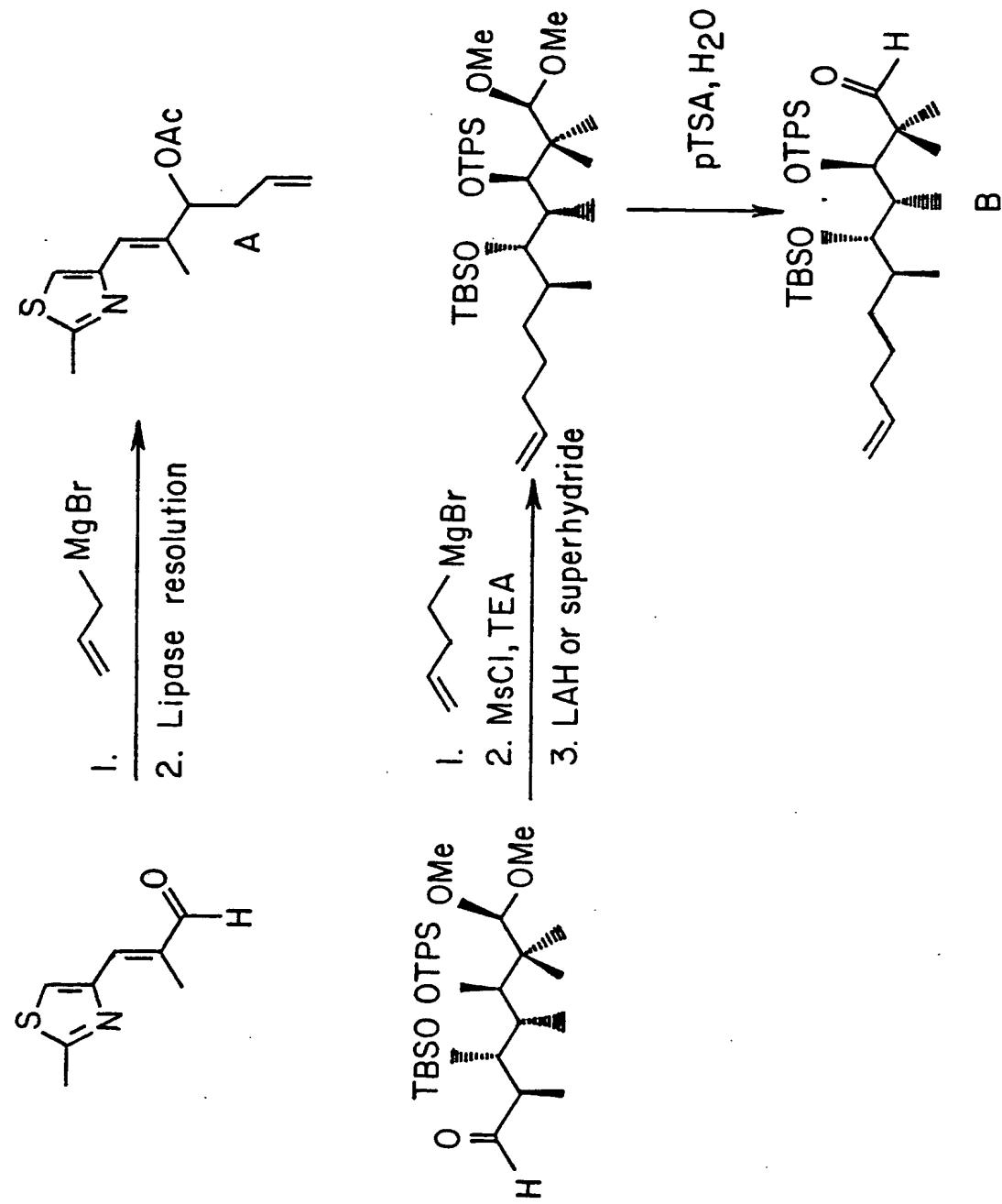
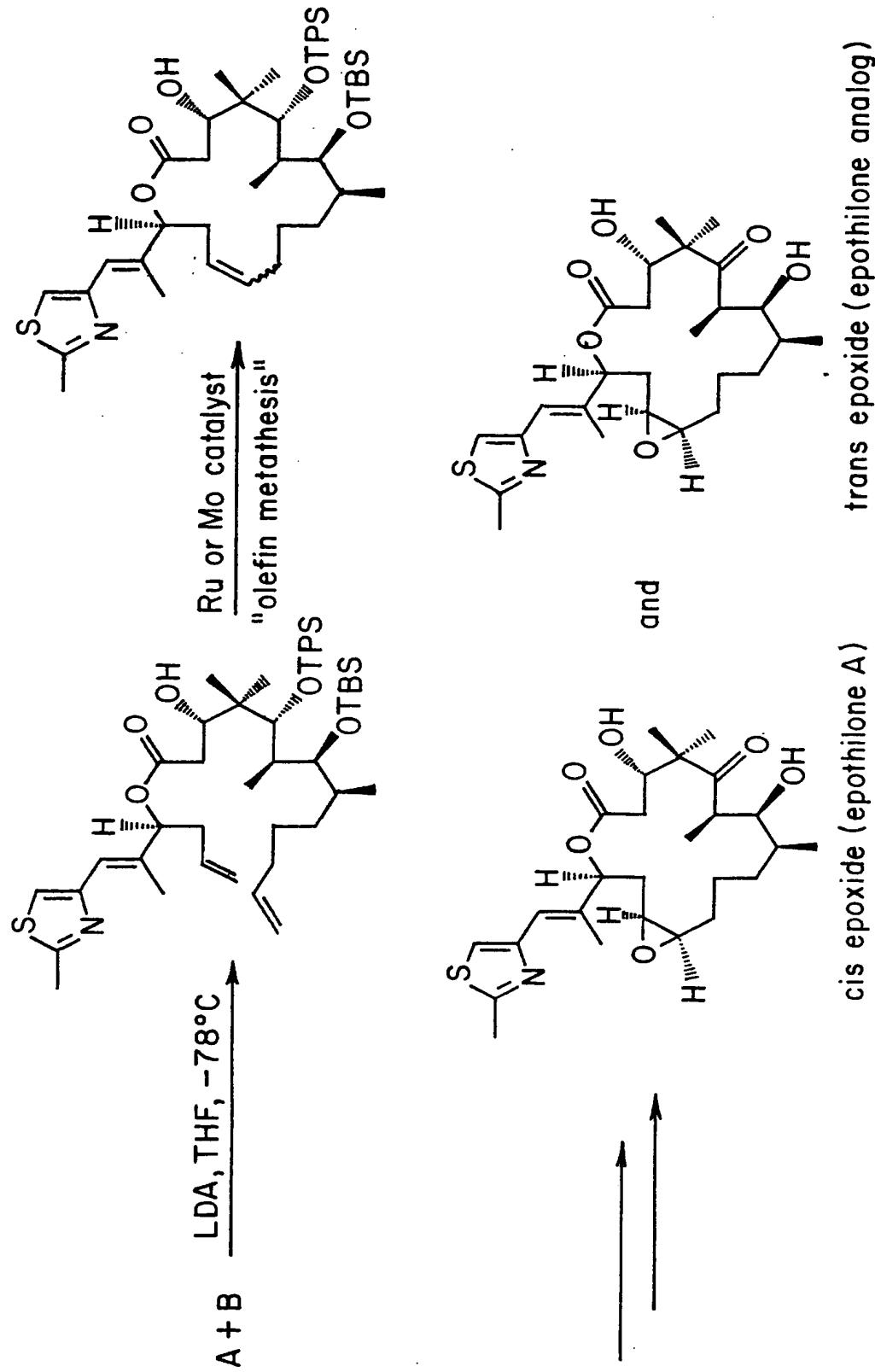
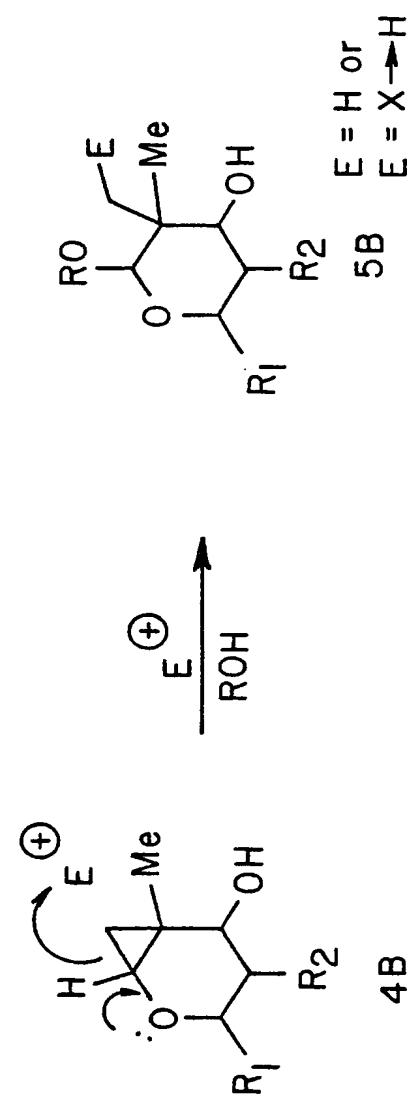
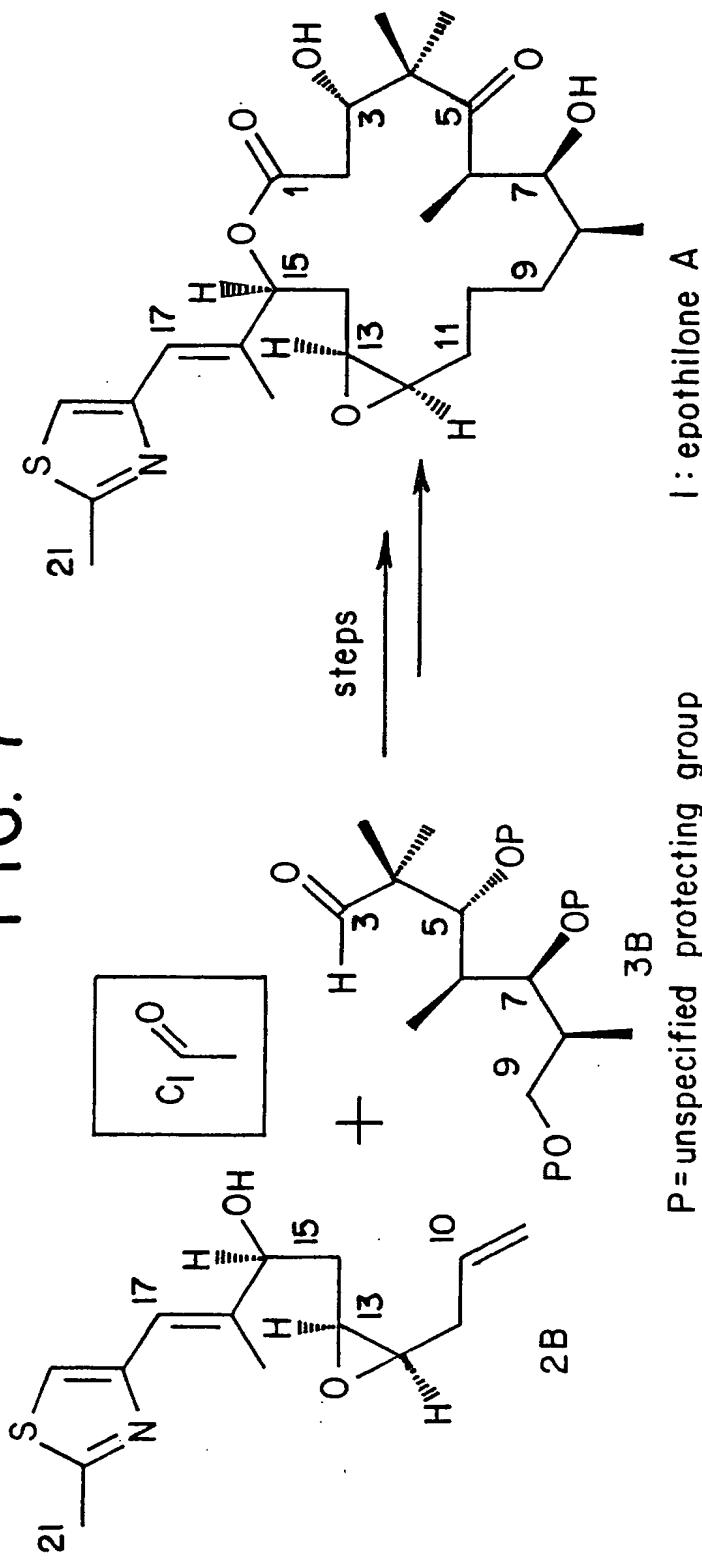


FIG. 6B



* 17 steps from known starting materials vs. 27 steps for **aldol macrocyclization**

FIG. 7



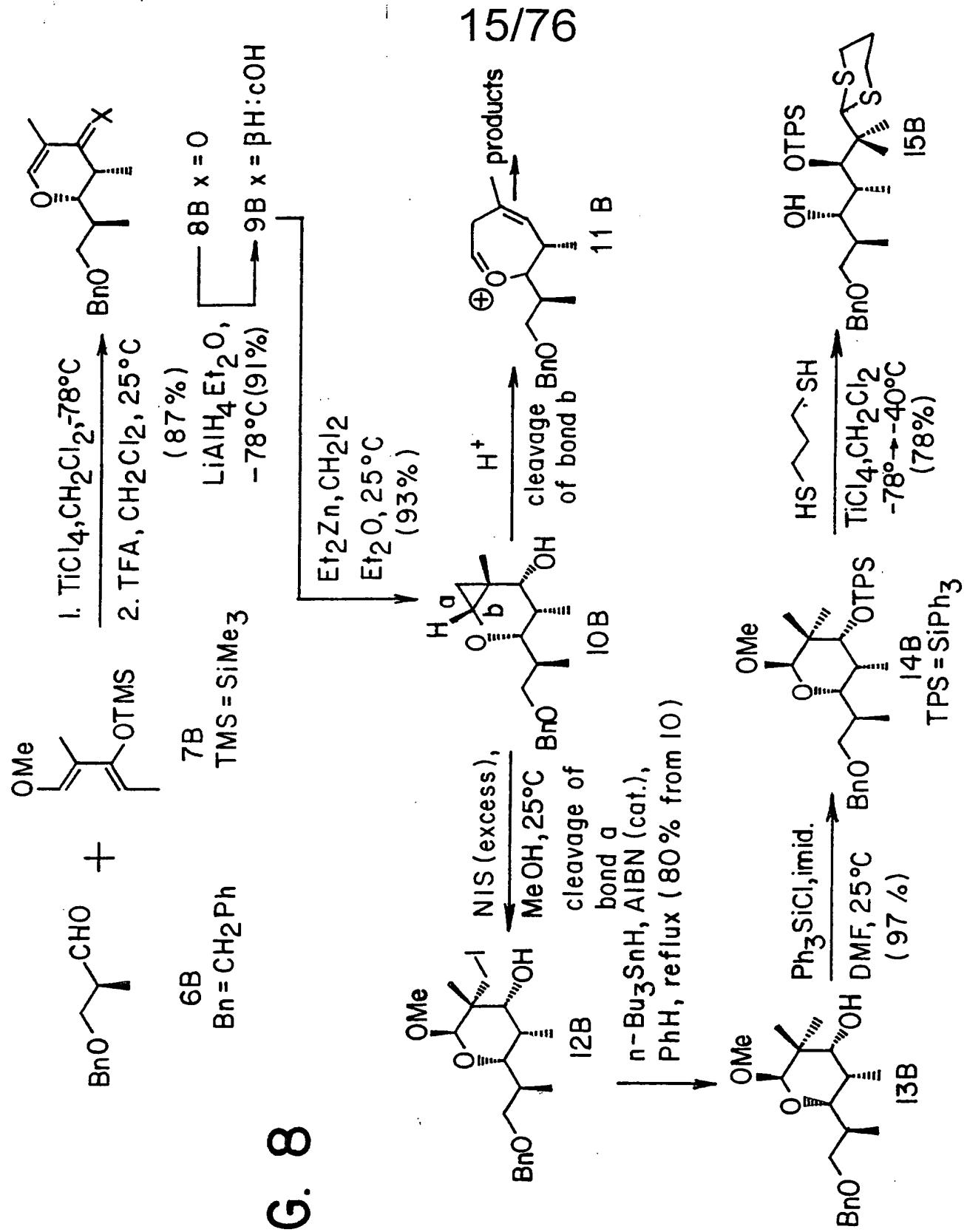
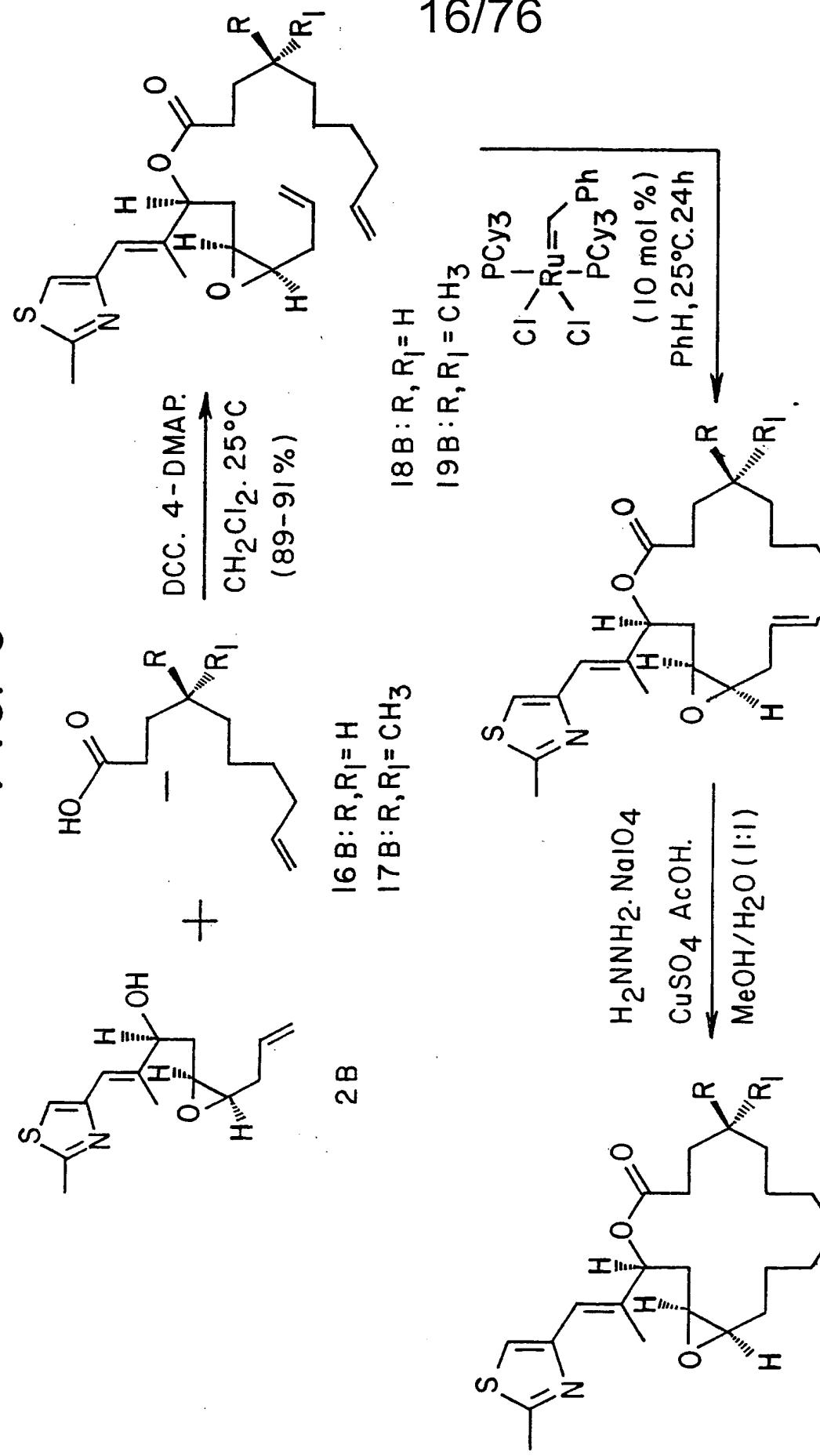


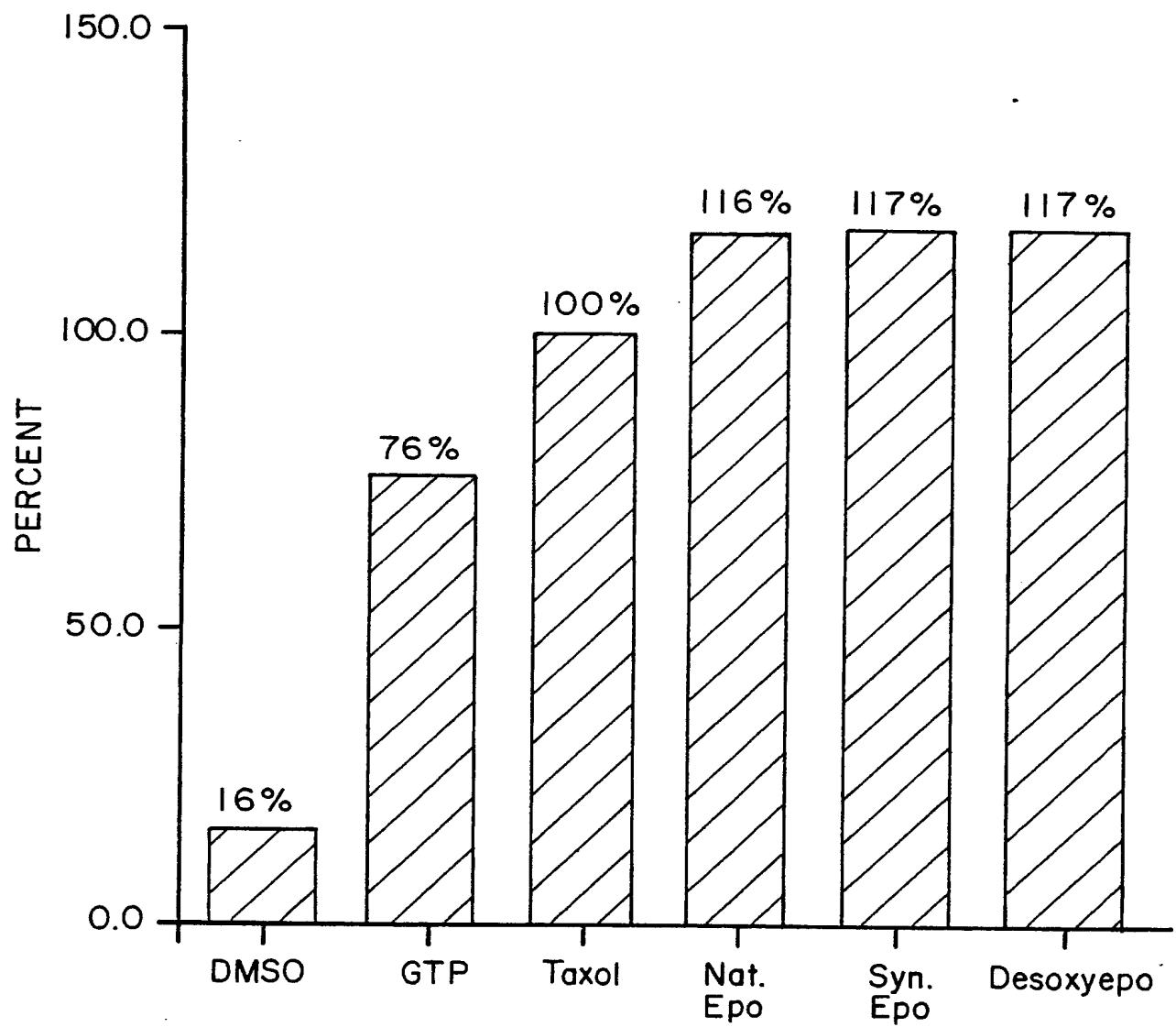
FIG. 9



16/76

17/76

FIG. 10



18/76

FIG. 11

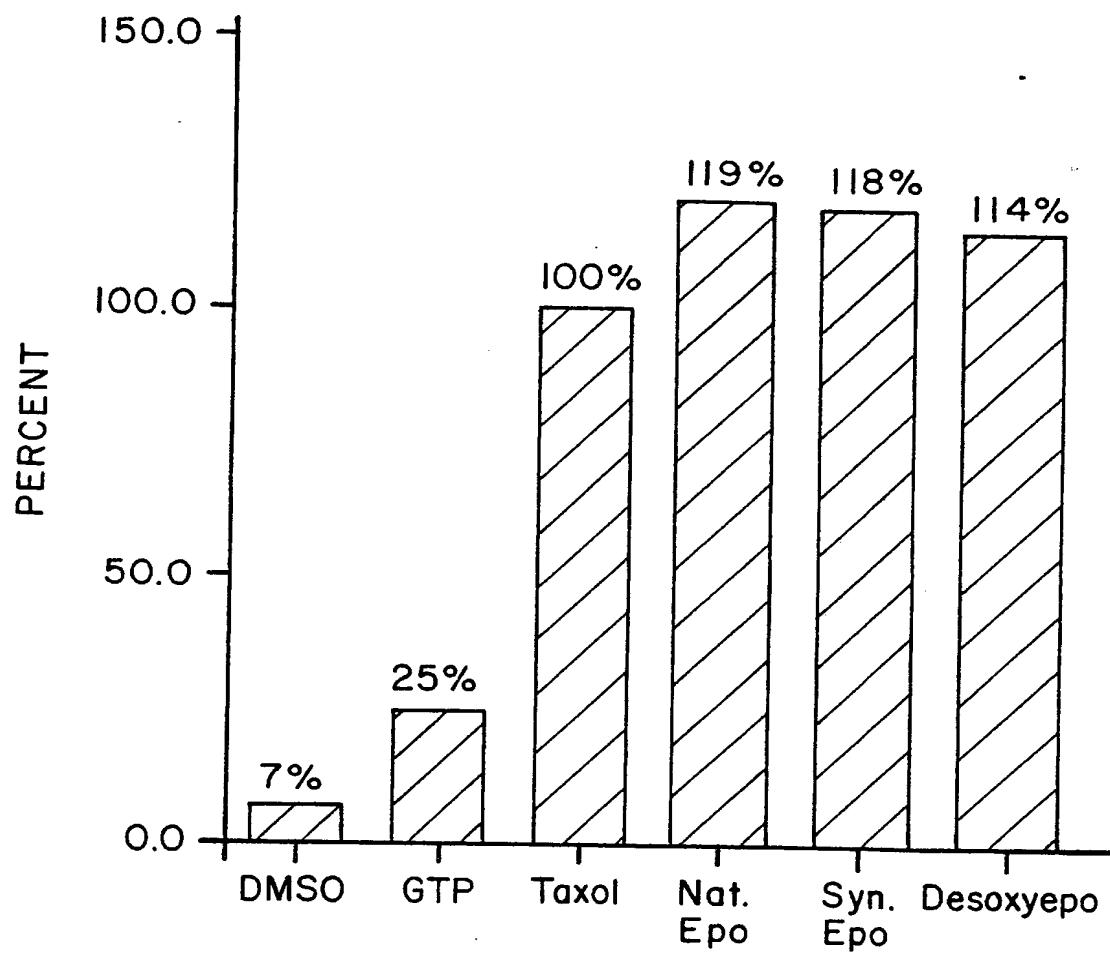


FIG. 13

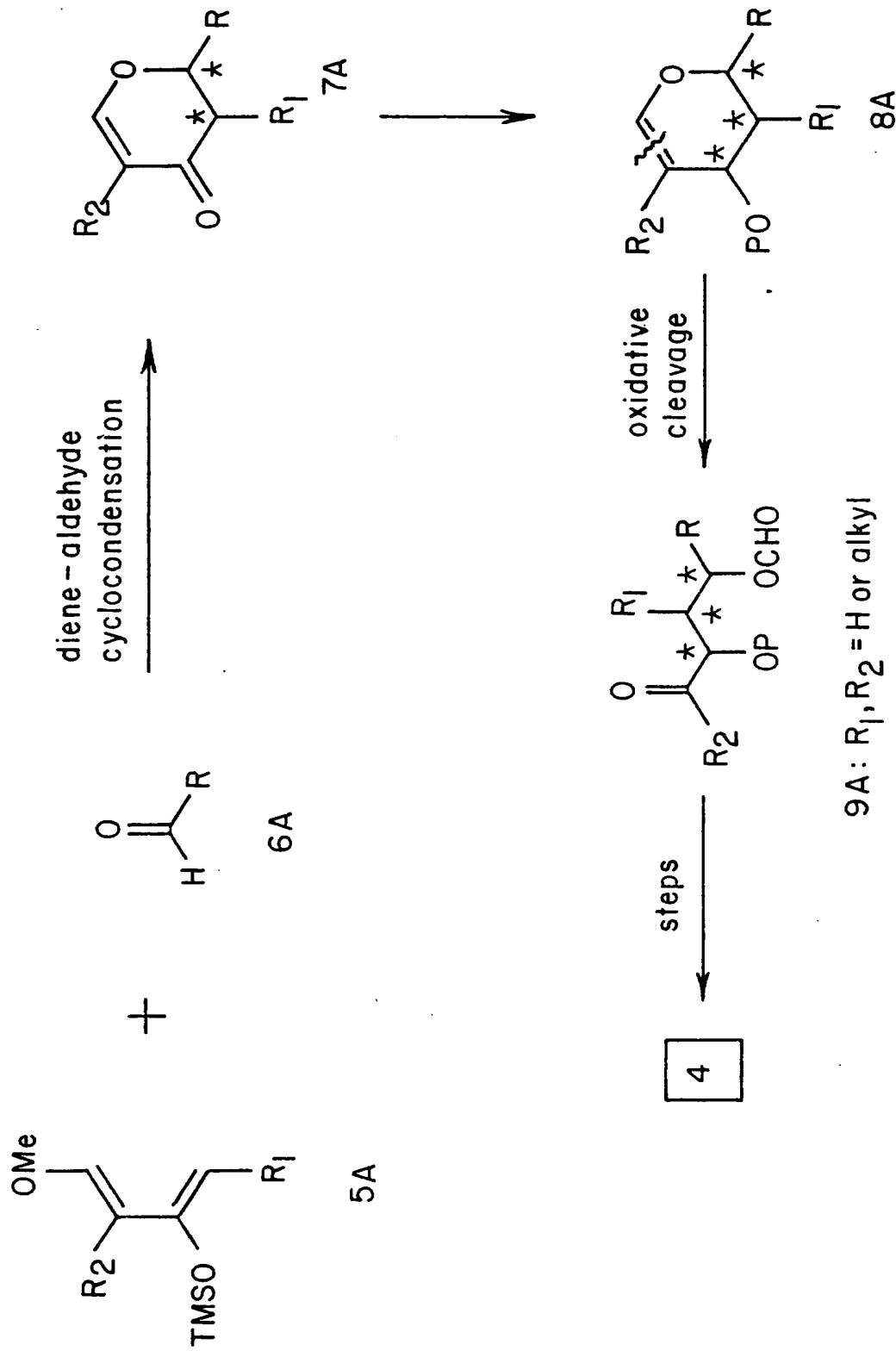


FIG. 14 A

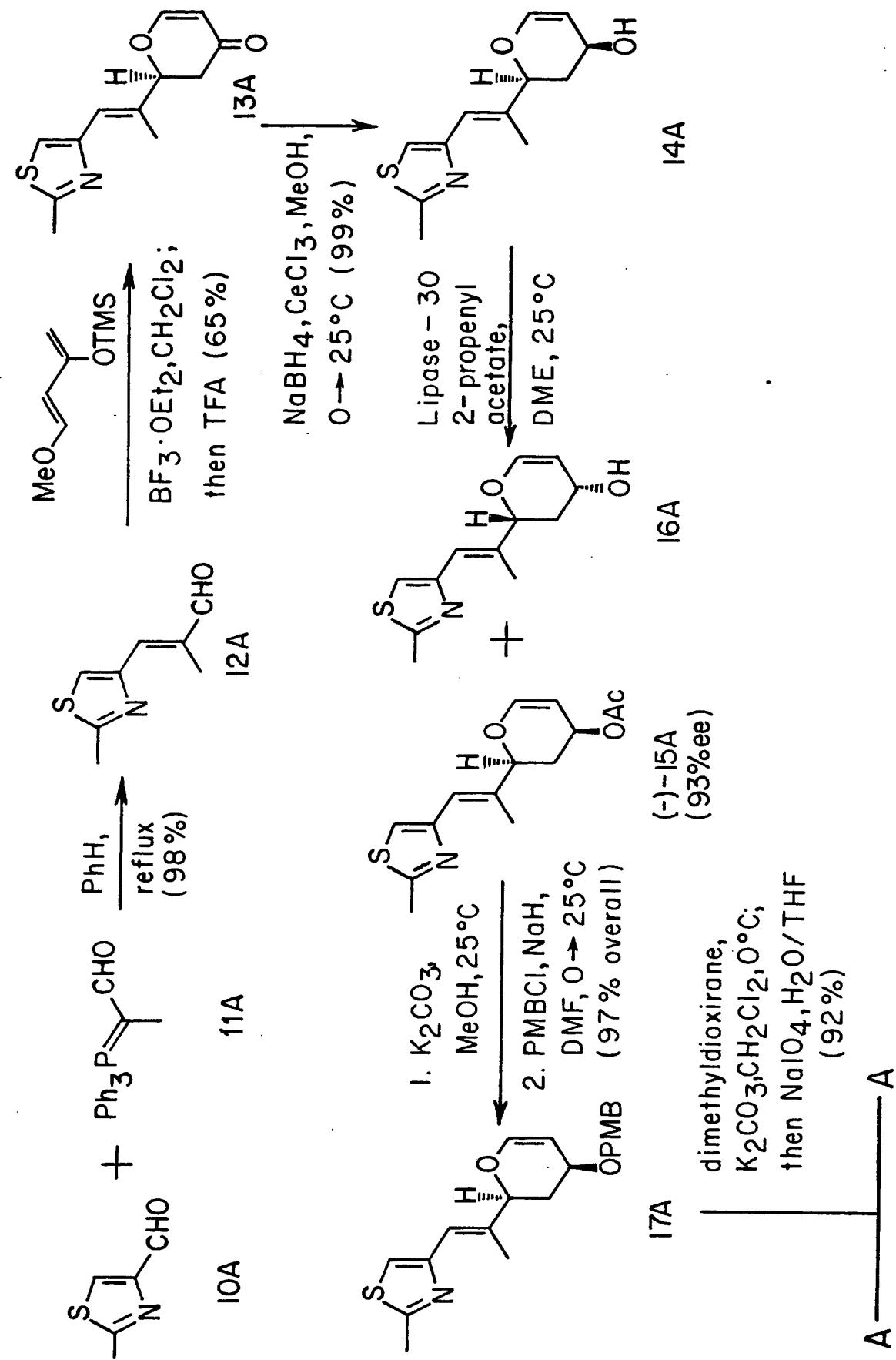


FIG. 14 B

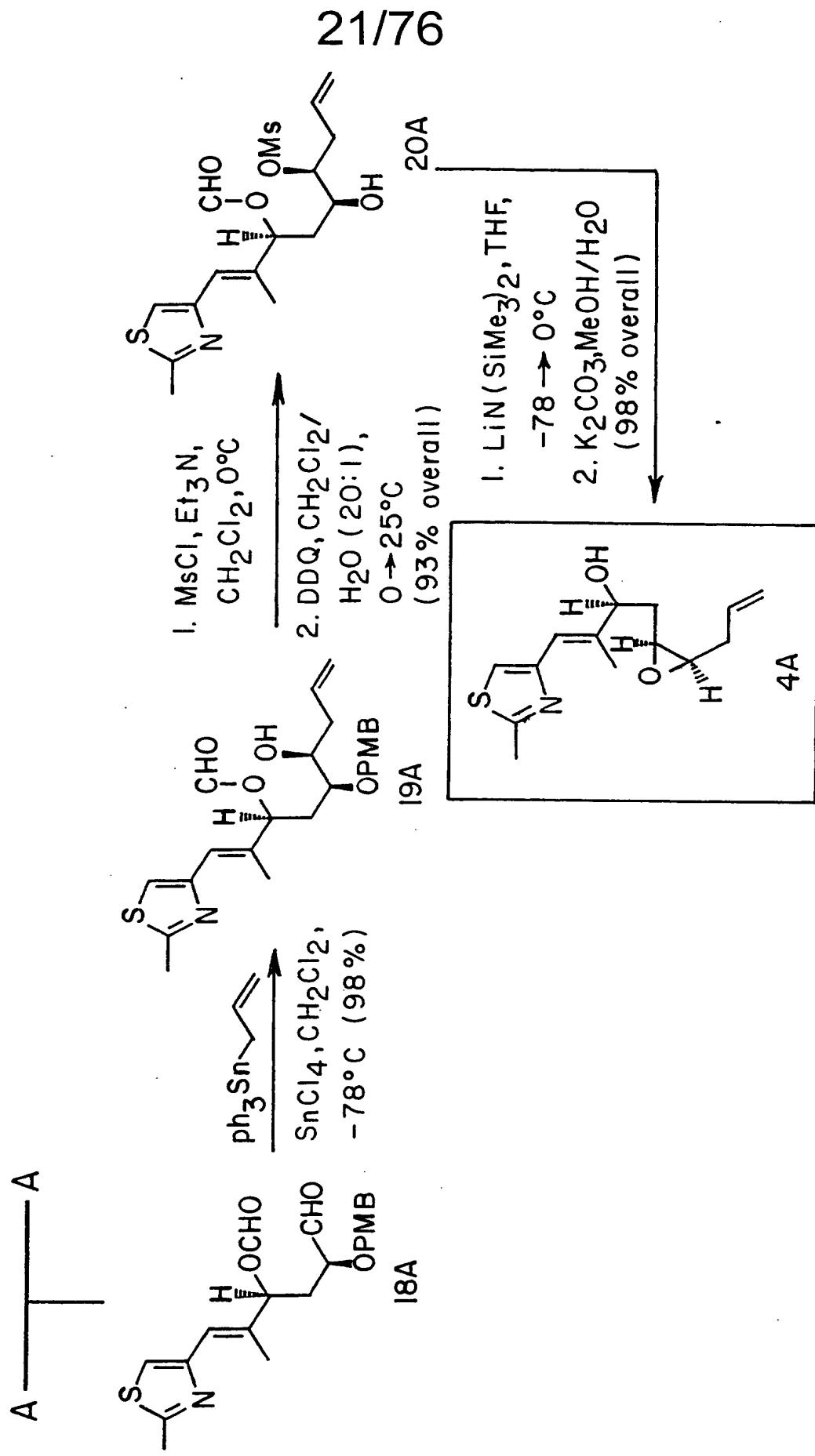


FIG. 15

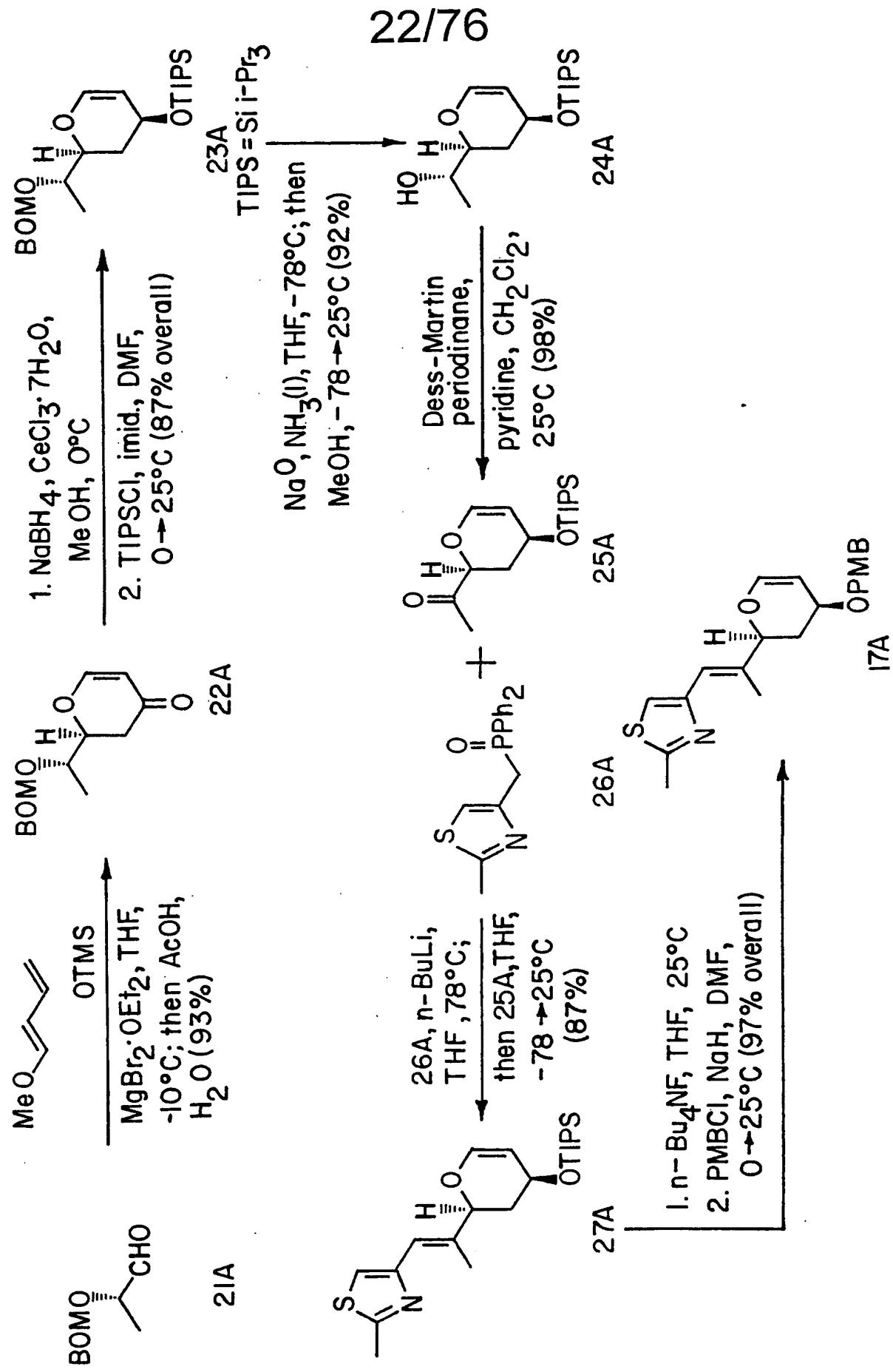


FIG. 16

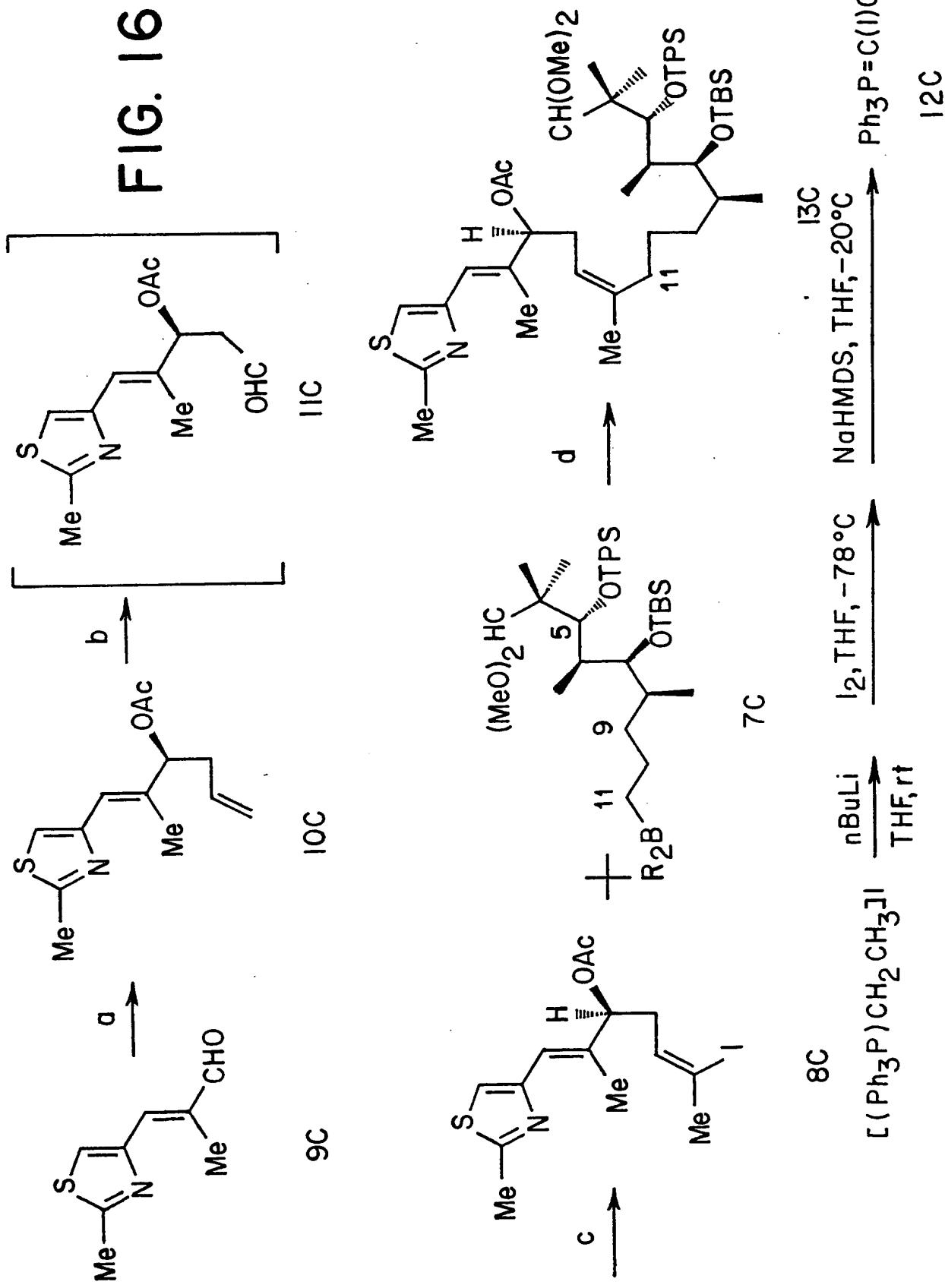
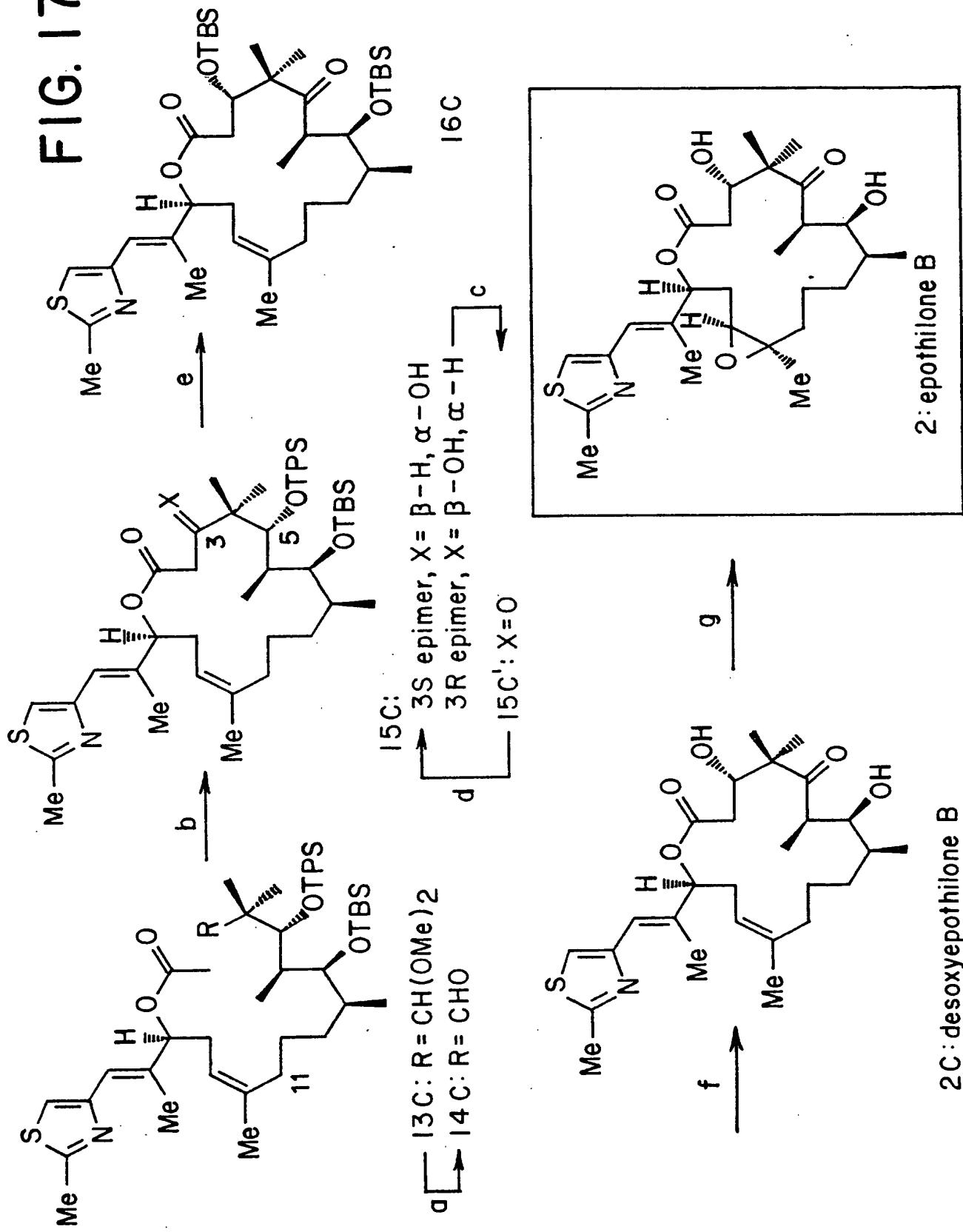


FIG. 17



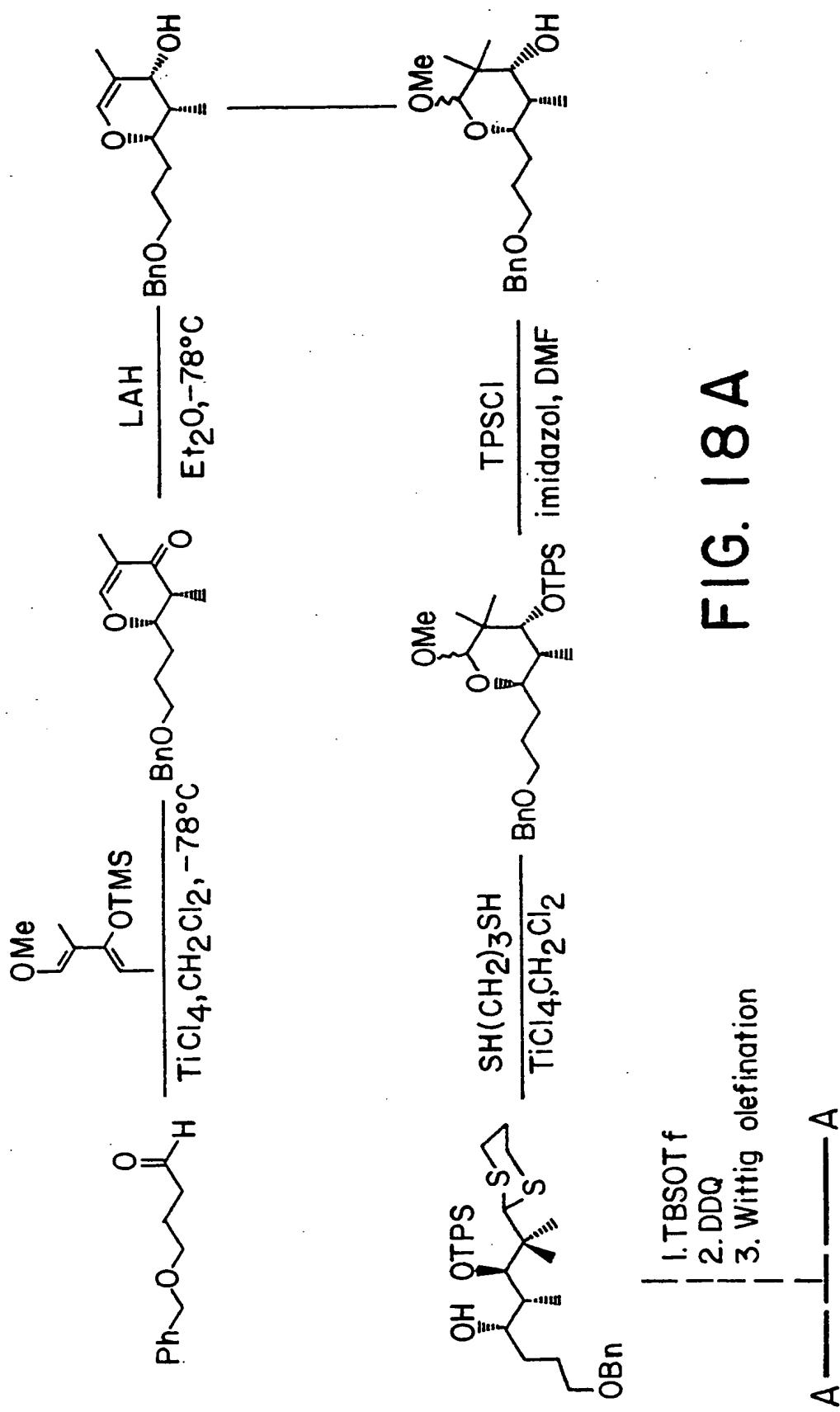


FIG. 18 A

FIG. 18B

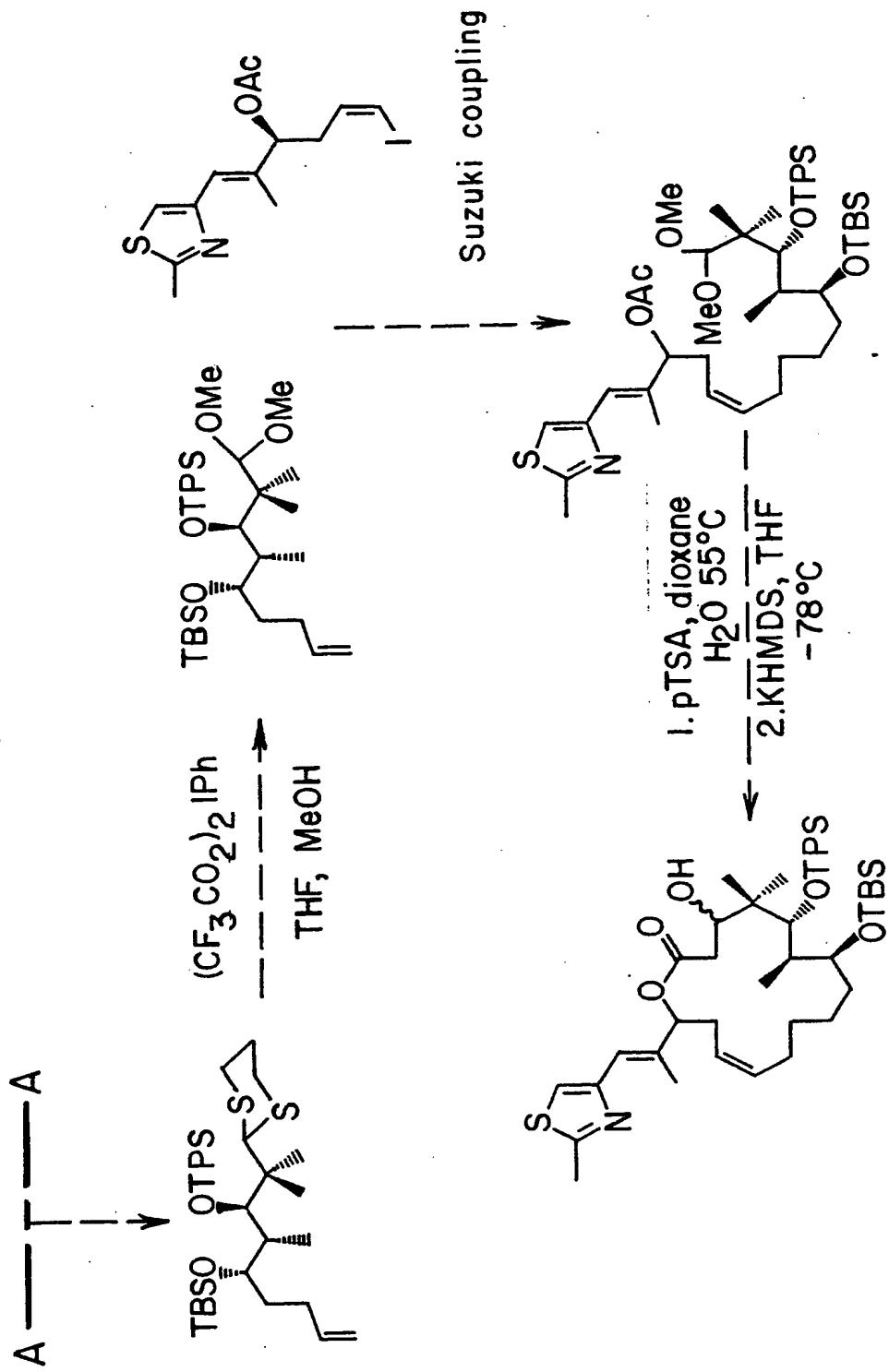
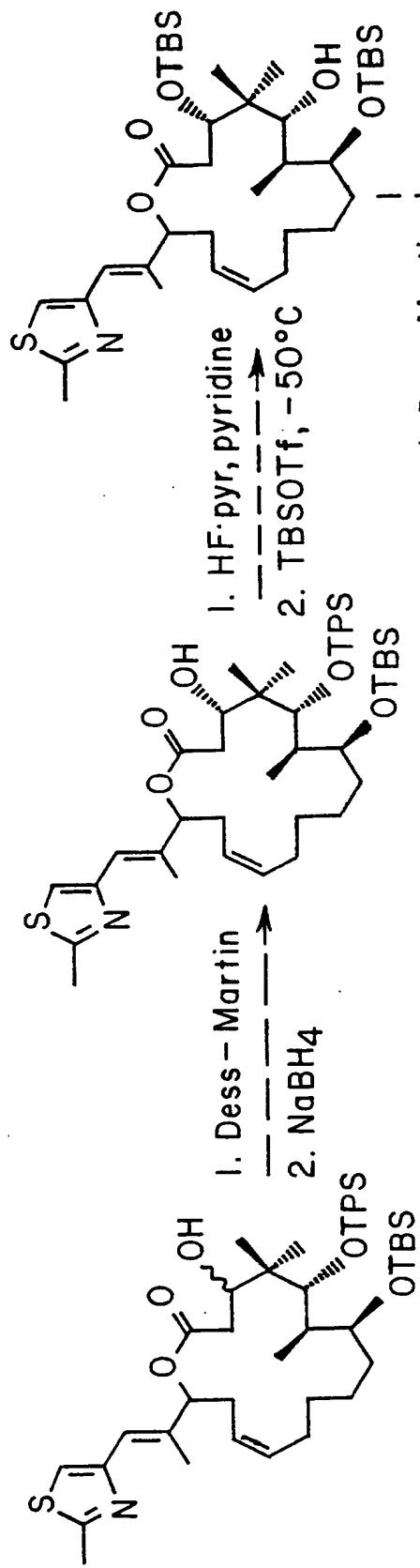
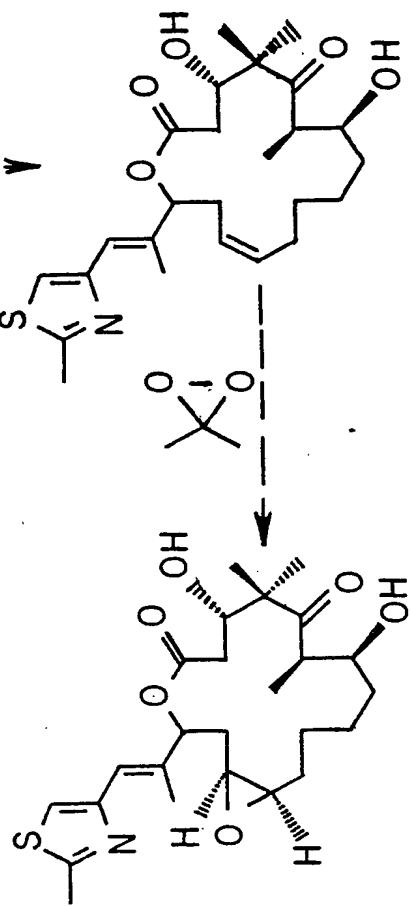
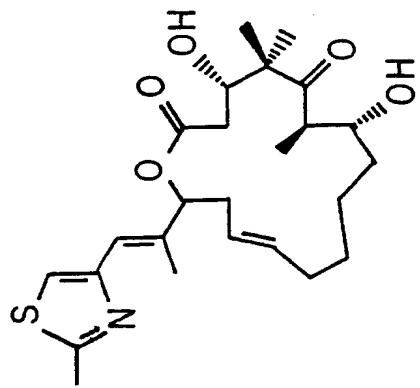


FIG. 19A**FIG. 19B**

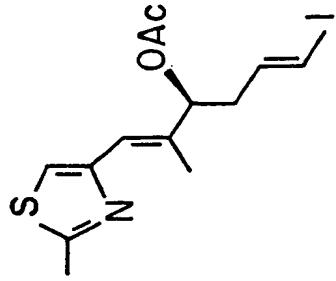
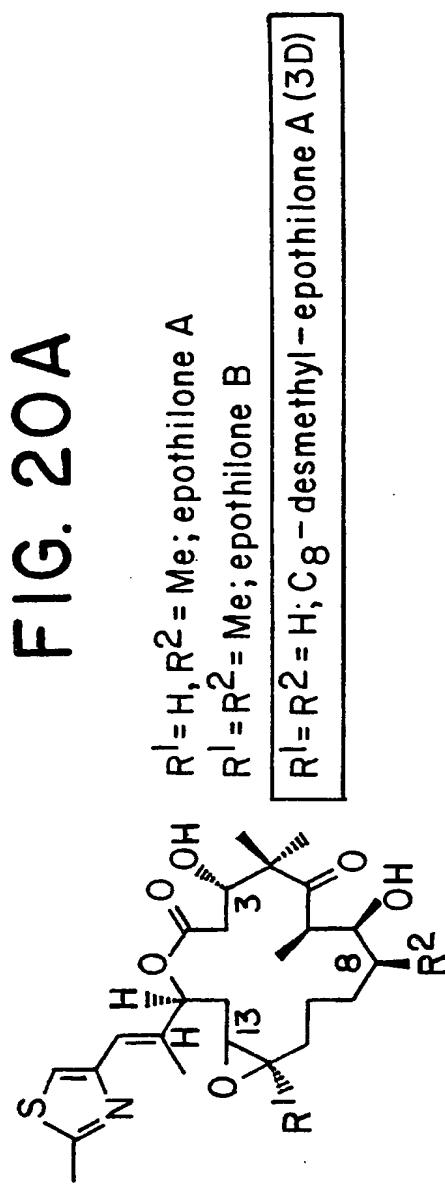
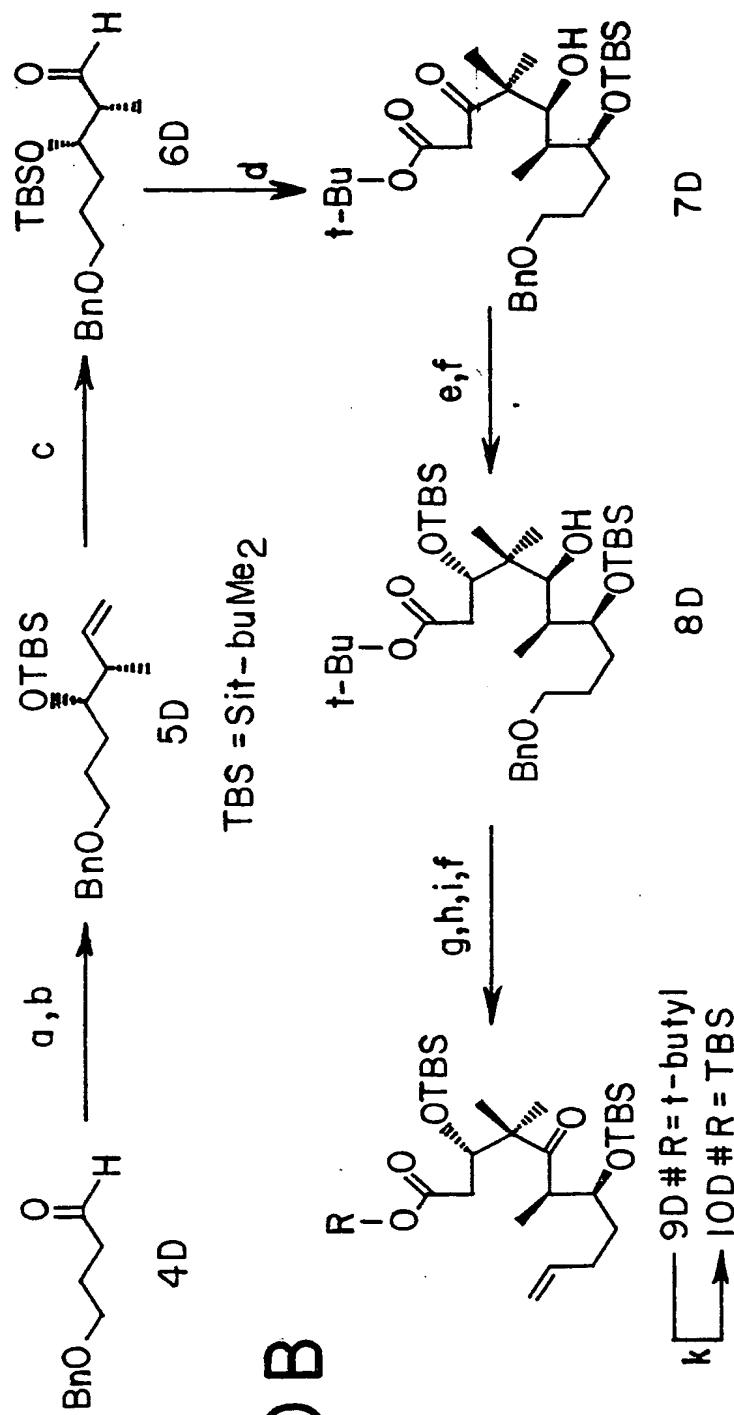


FIG. 20 A



28/76



k \square 9D # R = t-butyl
IOD # R = TBS

FIG. 21

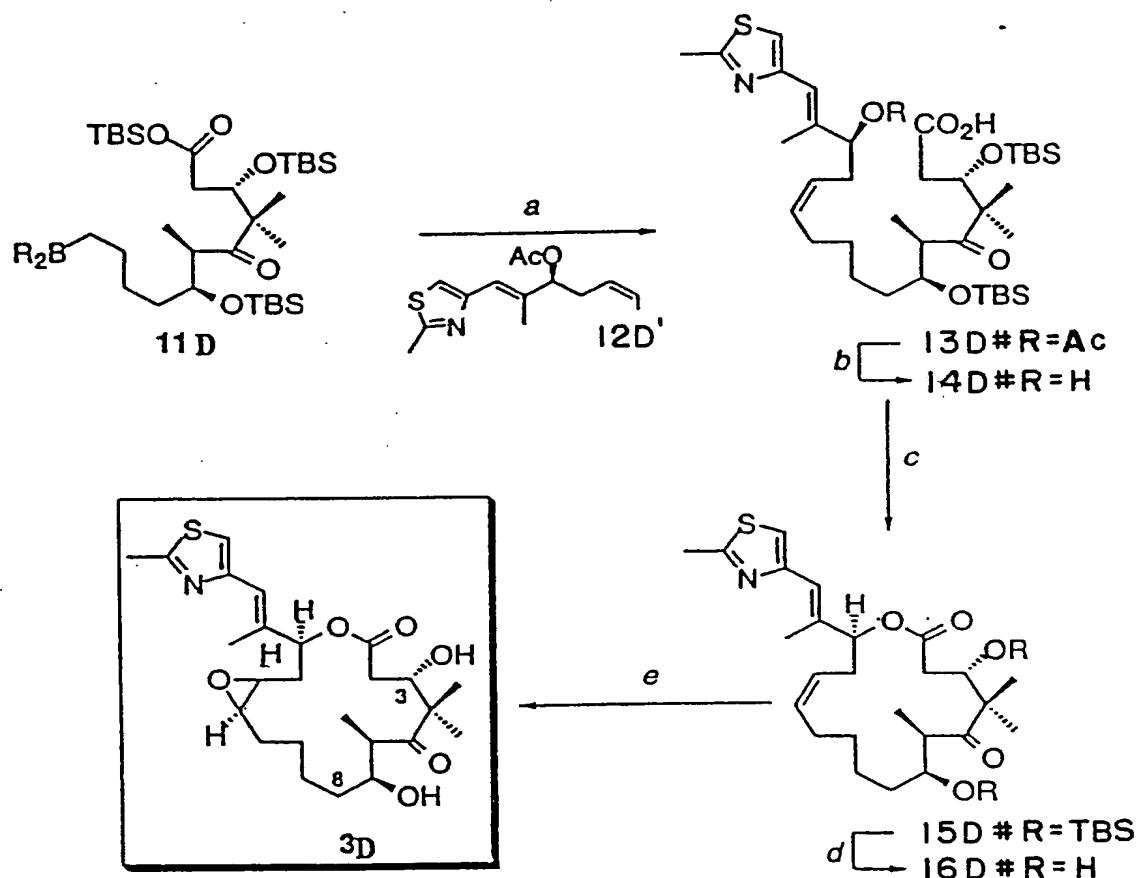


FIG. 22 A

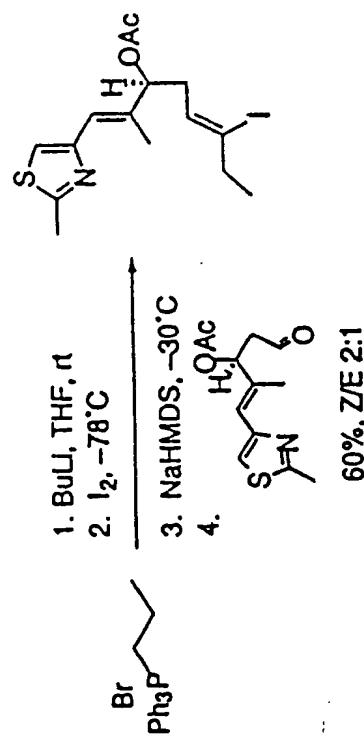


FIG. 22 B

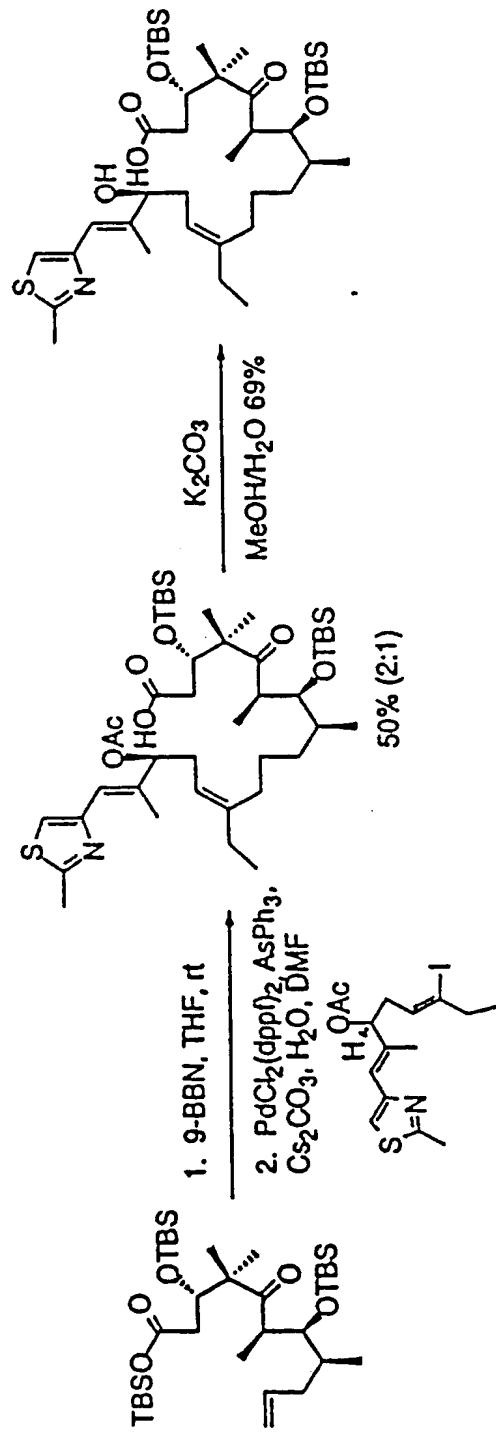


FIG. 22 C

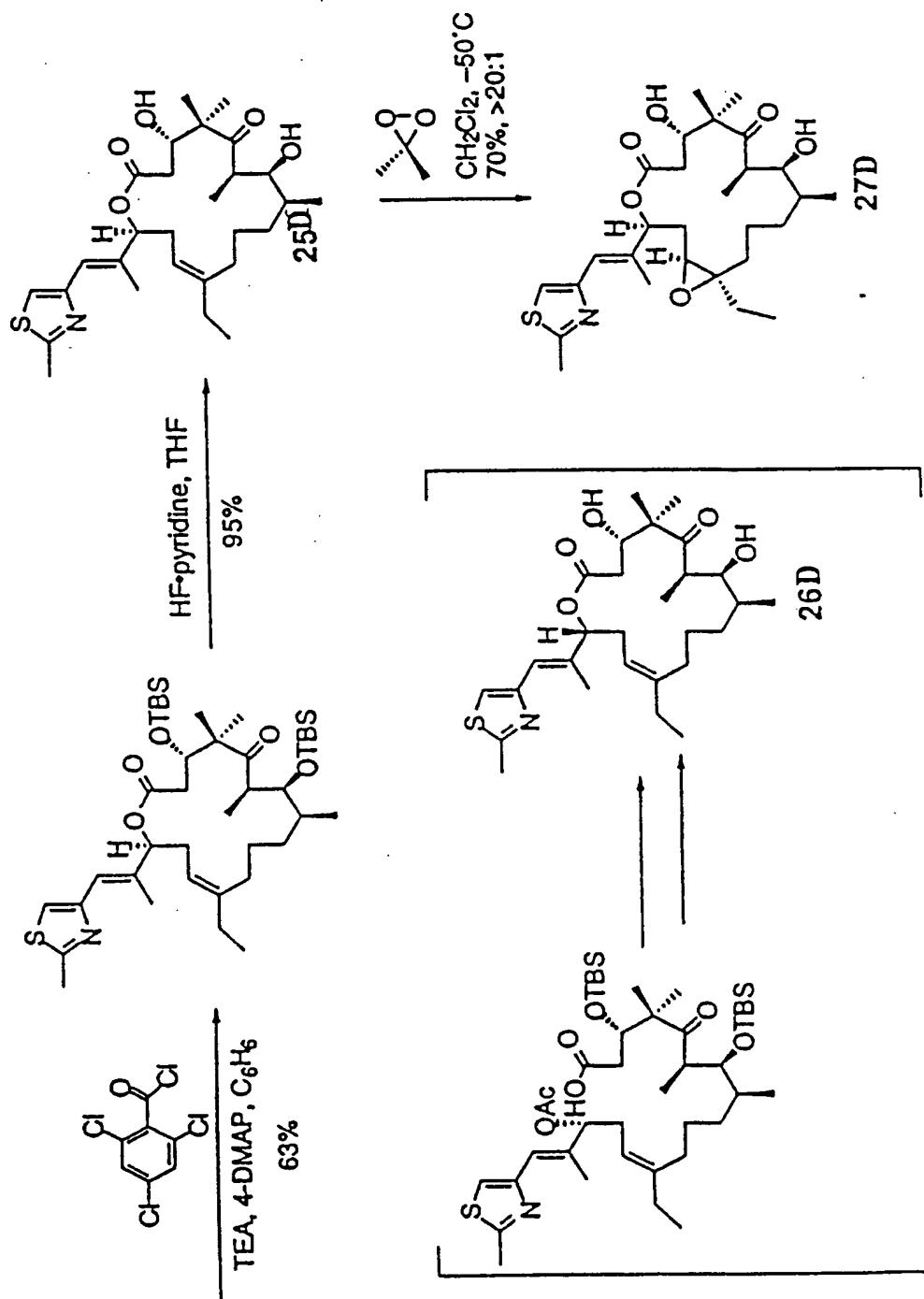


FIG. 23A

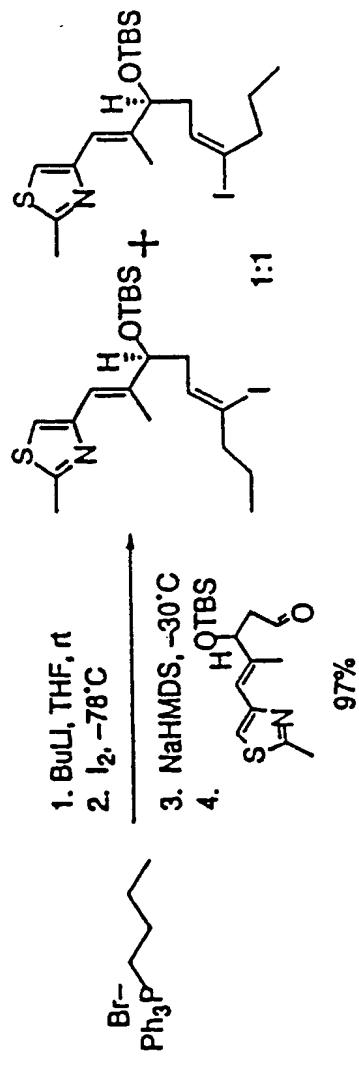


FIG. 23B

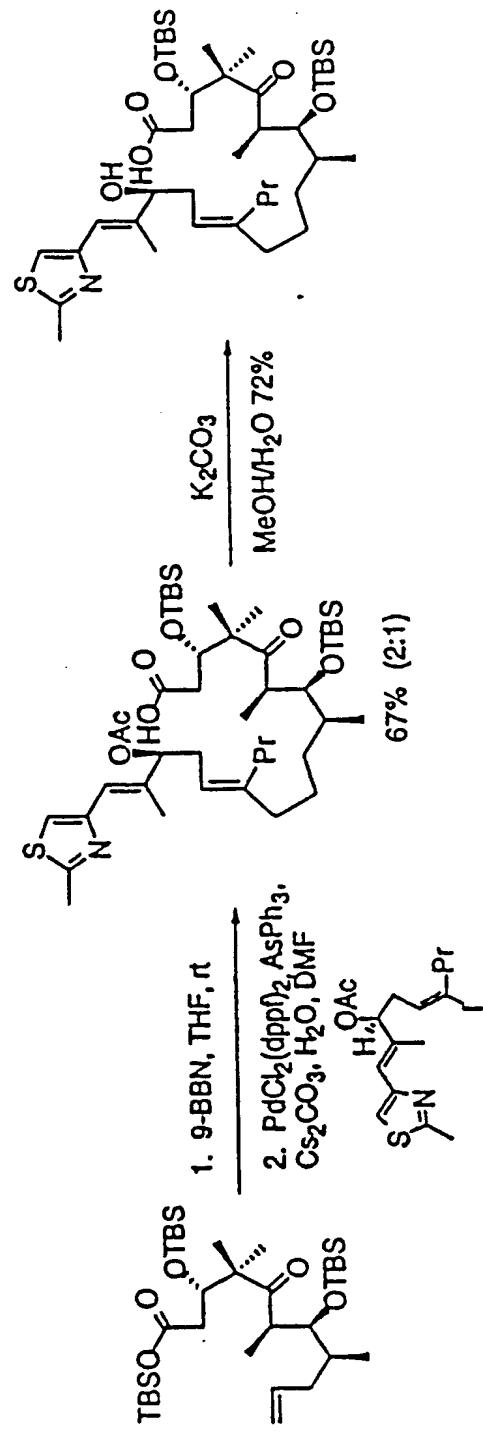


FIG. 23C

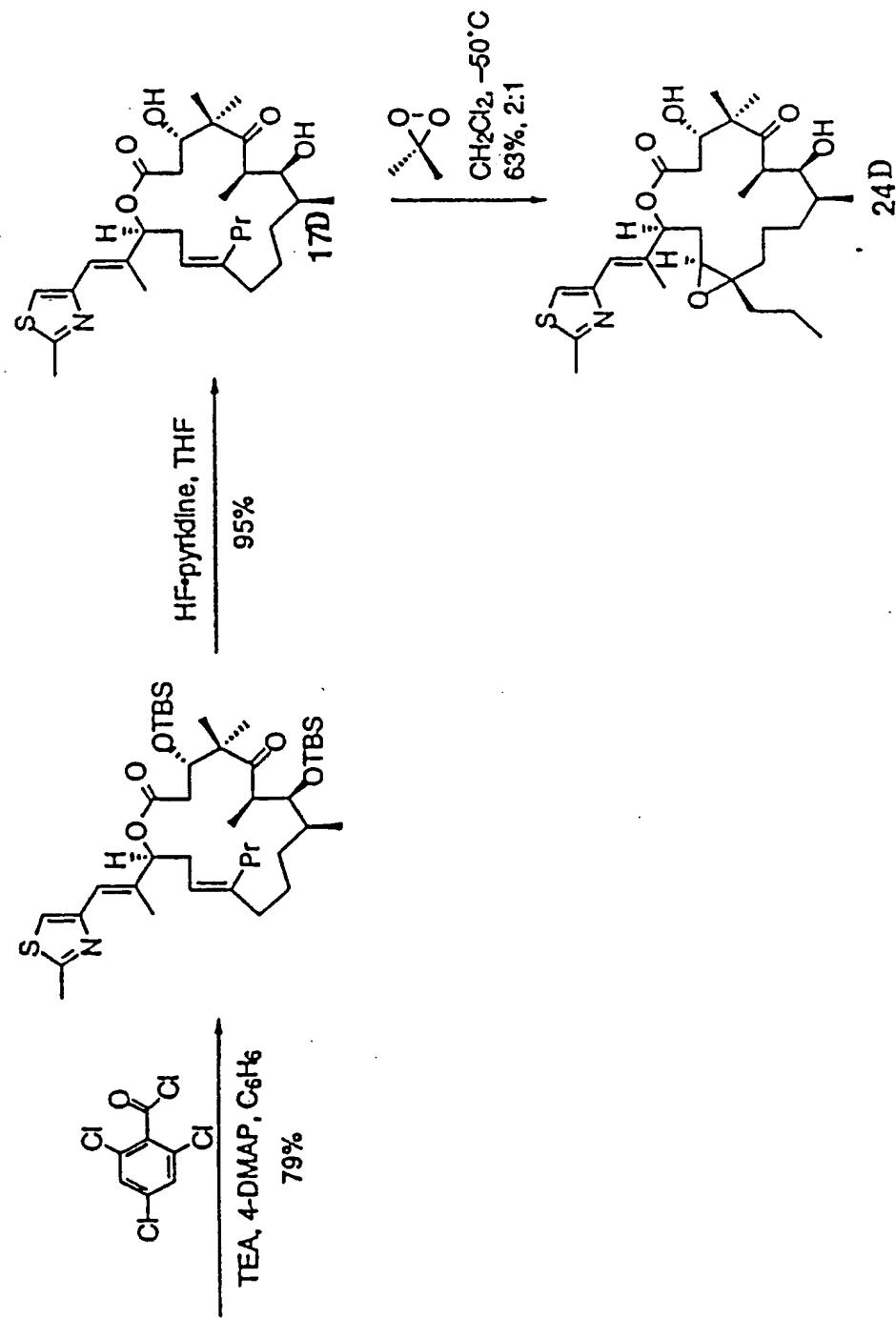


FIG. 24 A

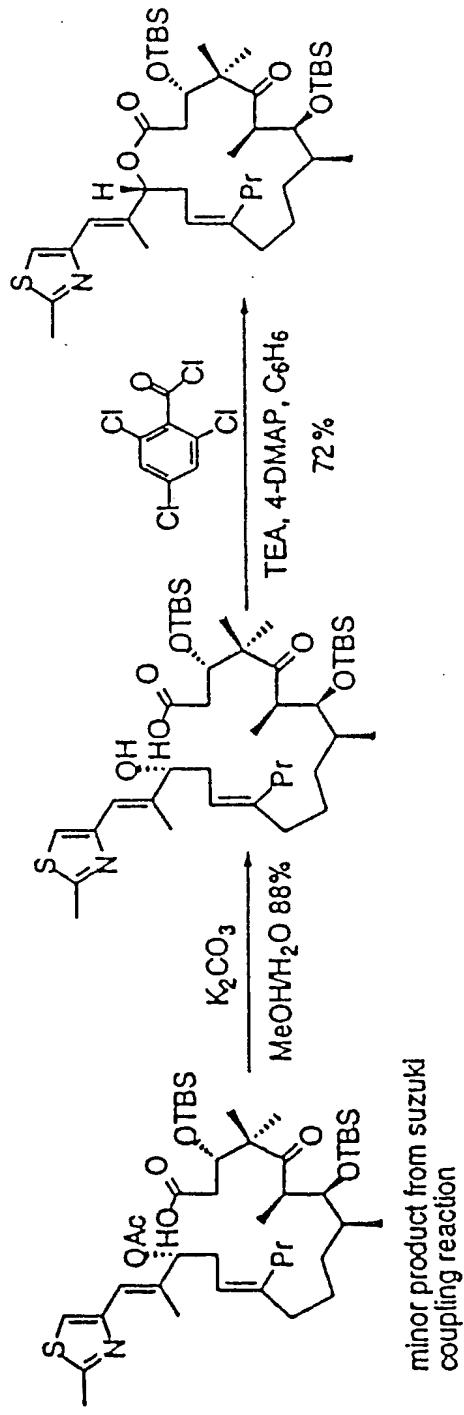


FIG. 24 B

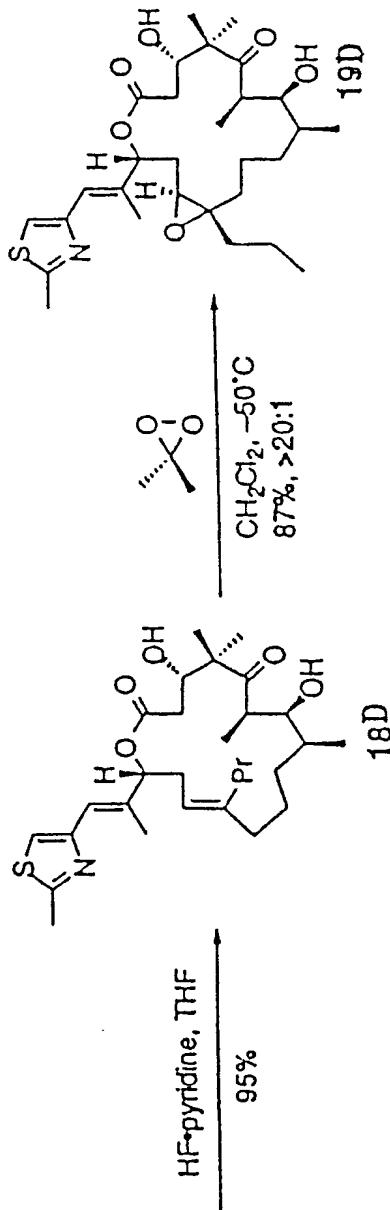


FIG. 25 A

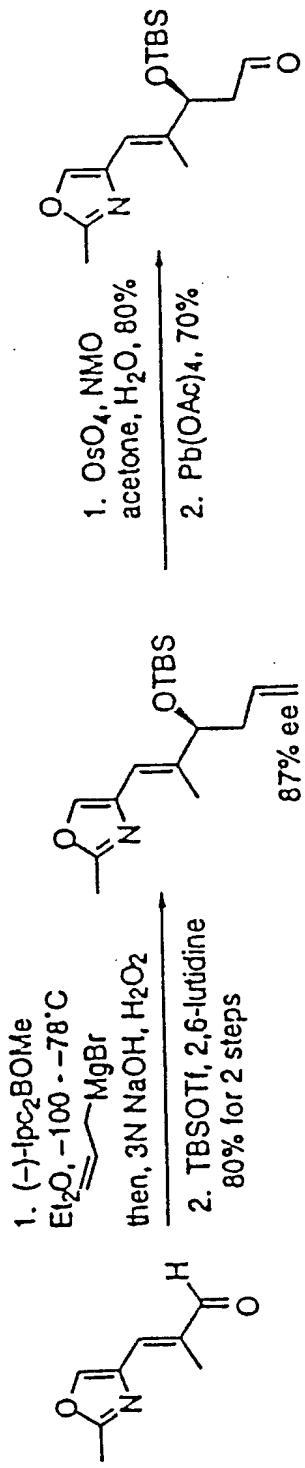


FIG. 25 B

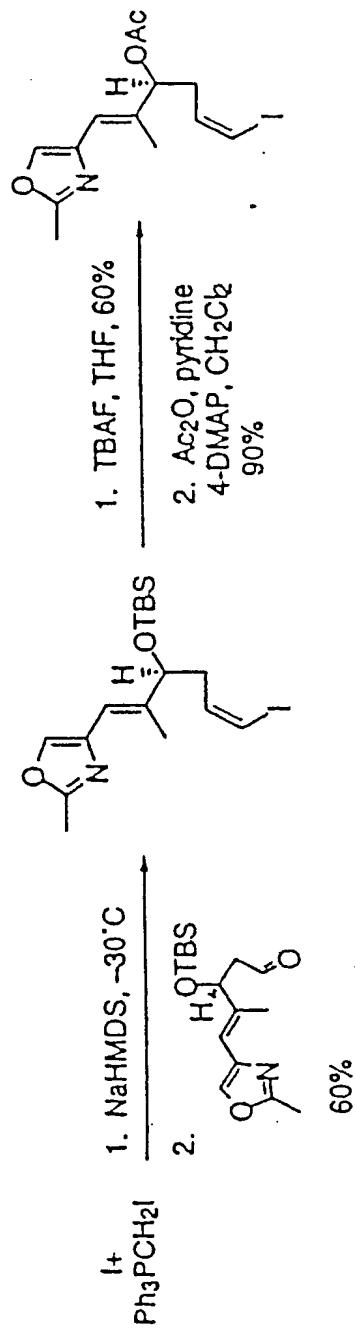


FIG. 25 C

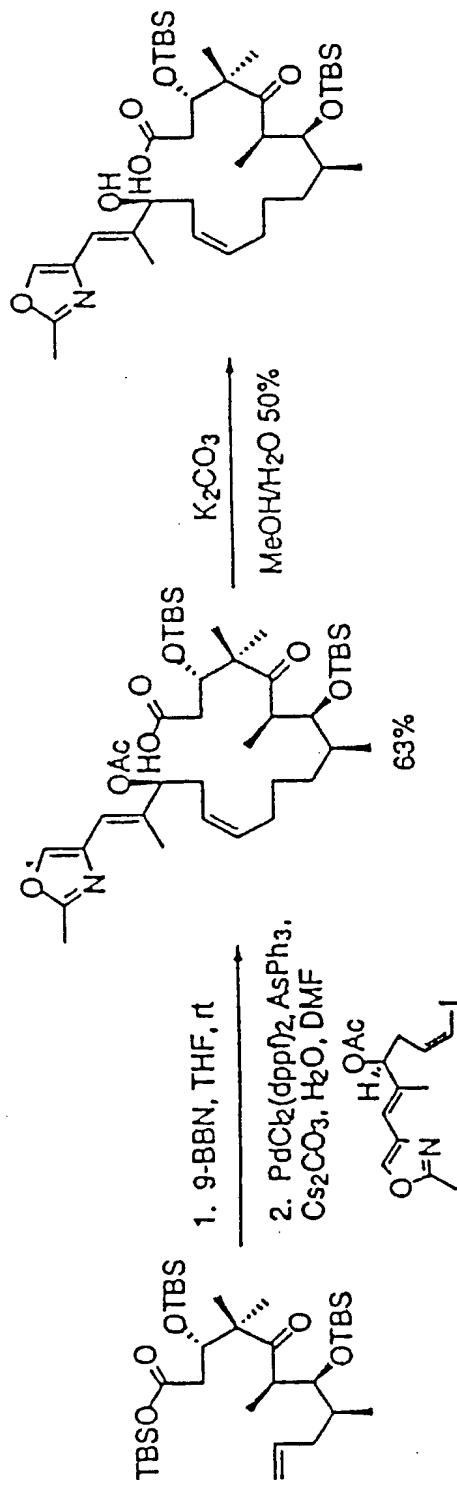


FIG. 25 D

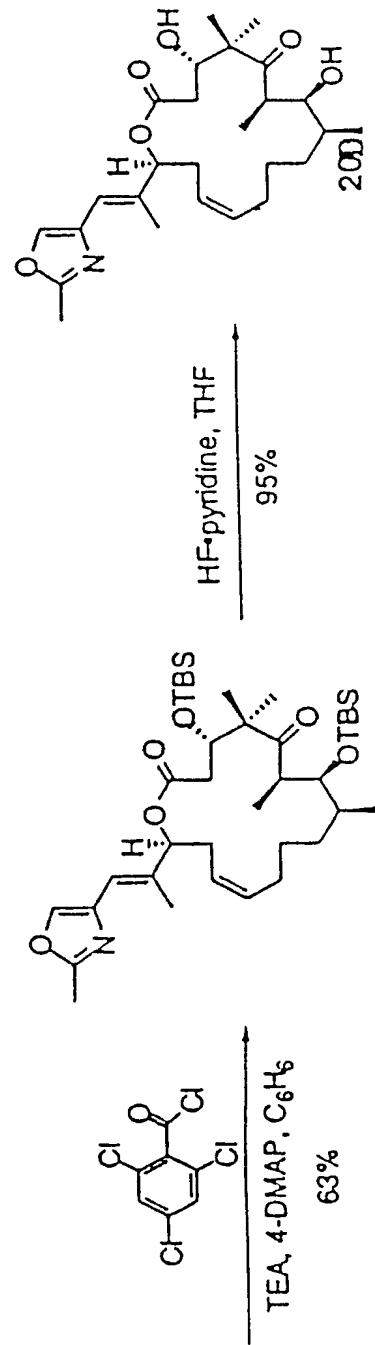


FIG. 26 A

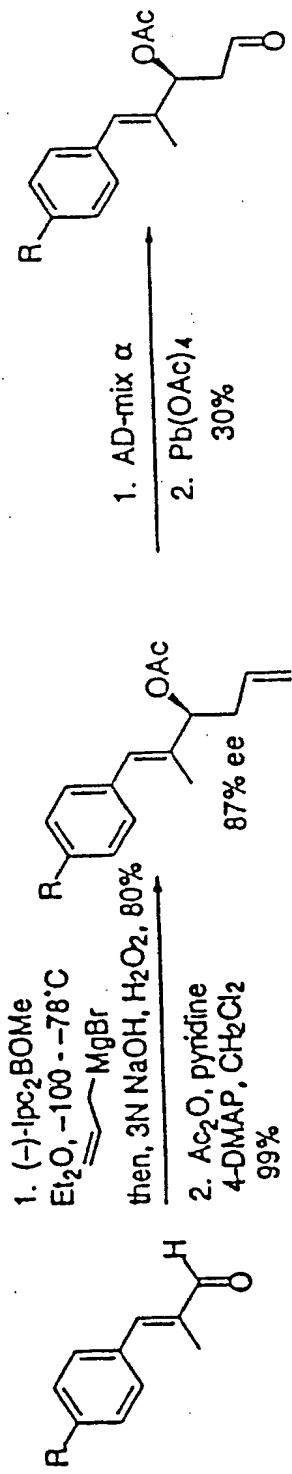
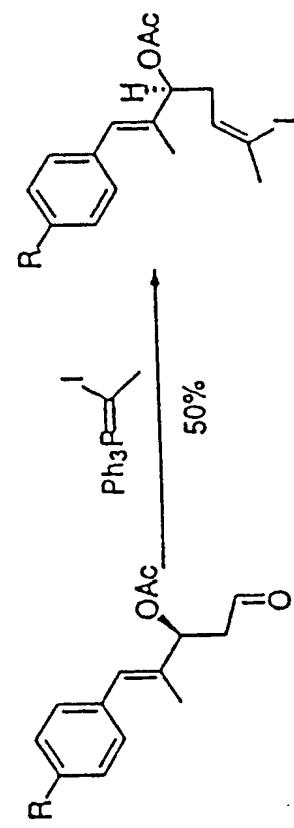


FIG. 26 B



$R = \text{H, F, CF}_3$,
 $R = \text{H}$ is the only compound completed, F and CF_3 are nearly completed

FIG. 26 C

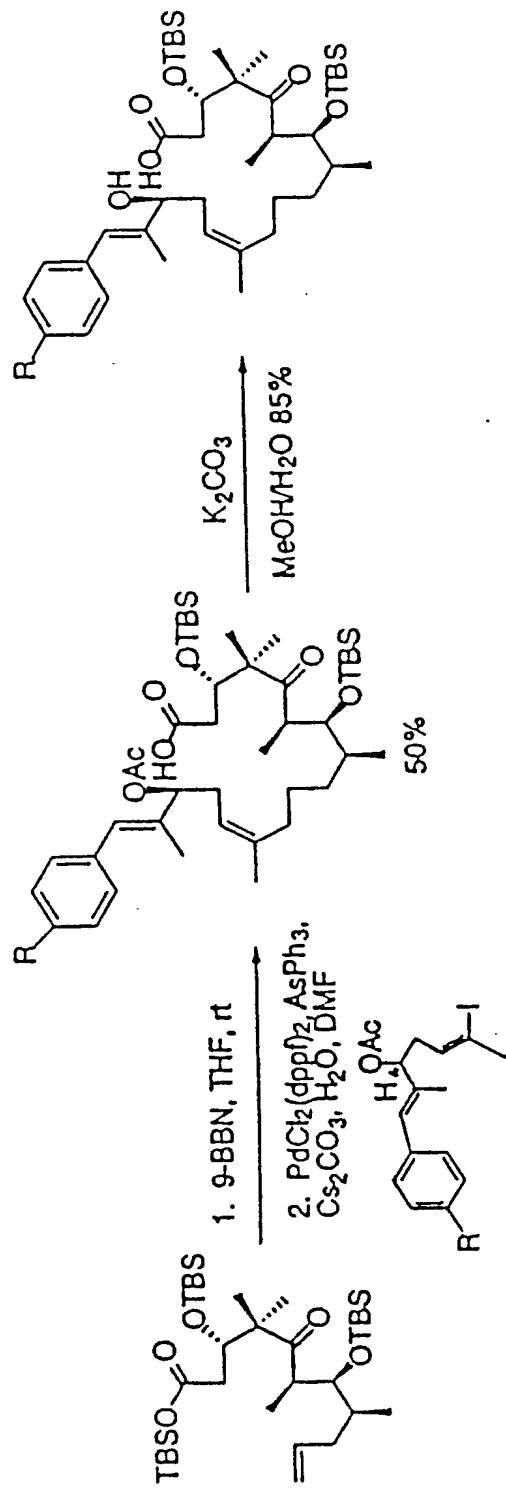


FIG. 26 D

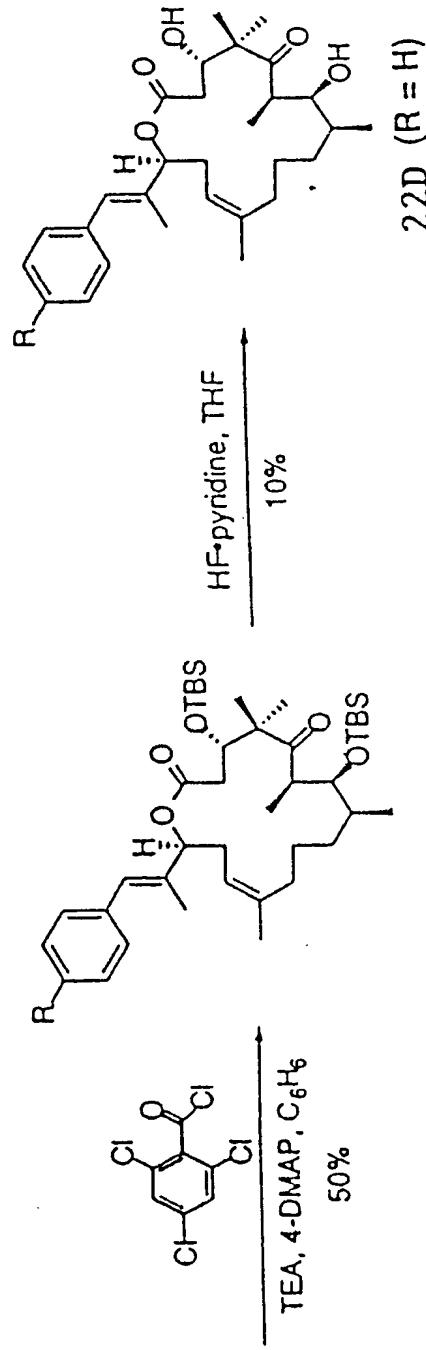


FIG. 27A

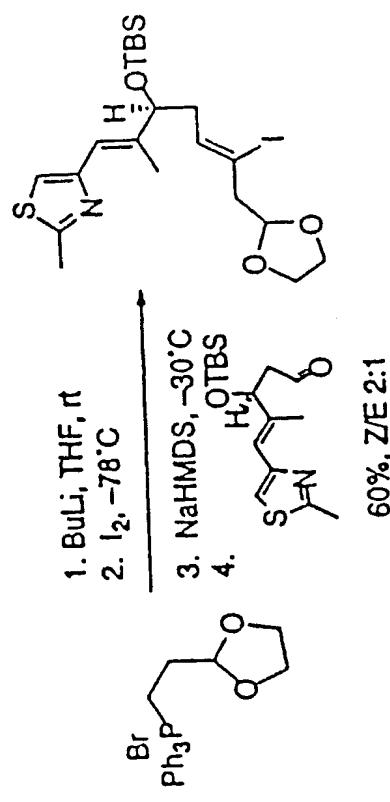
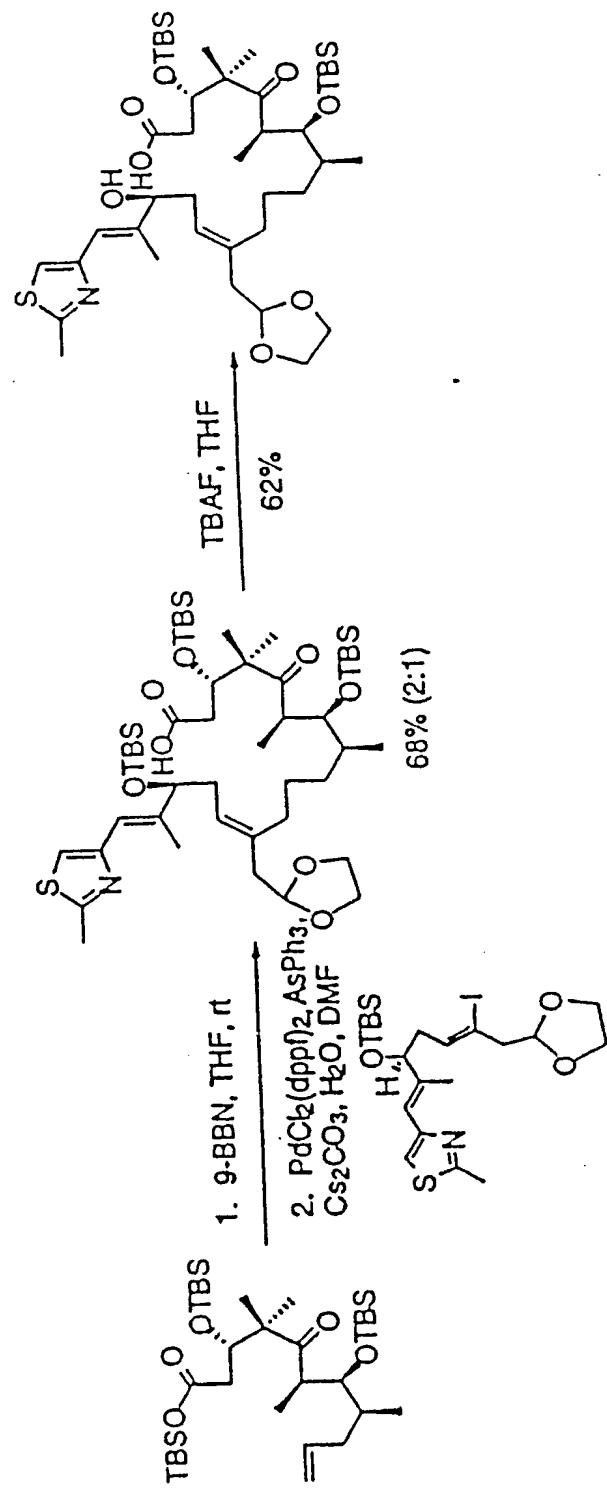
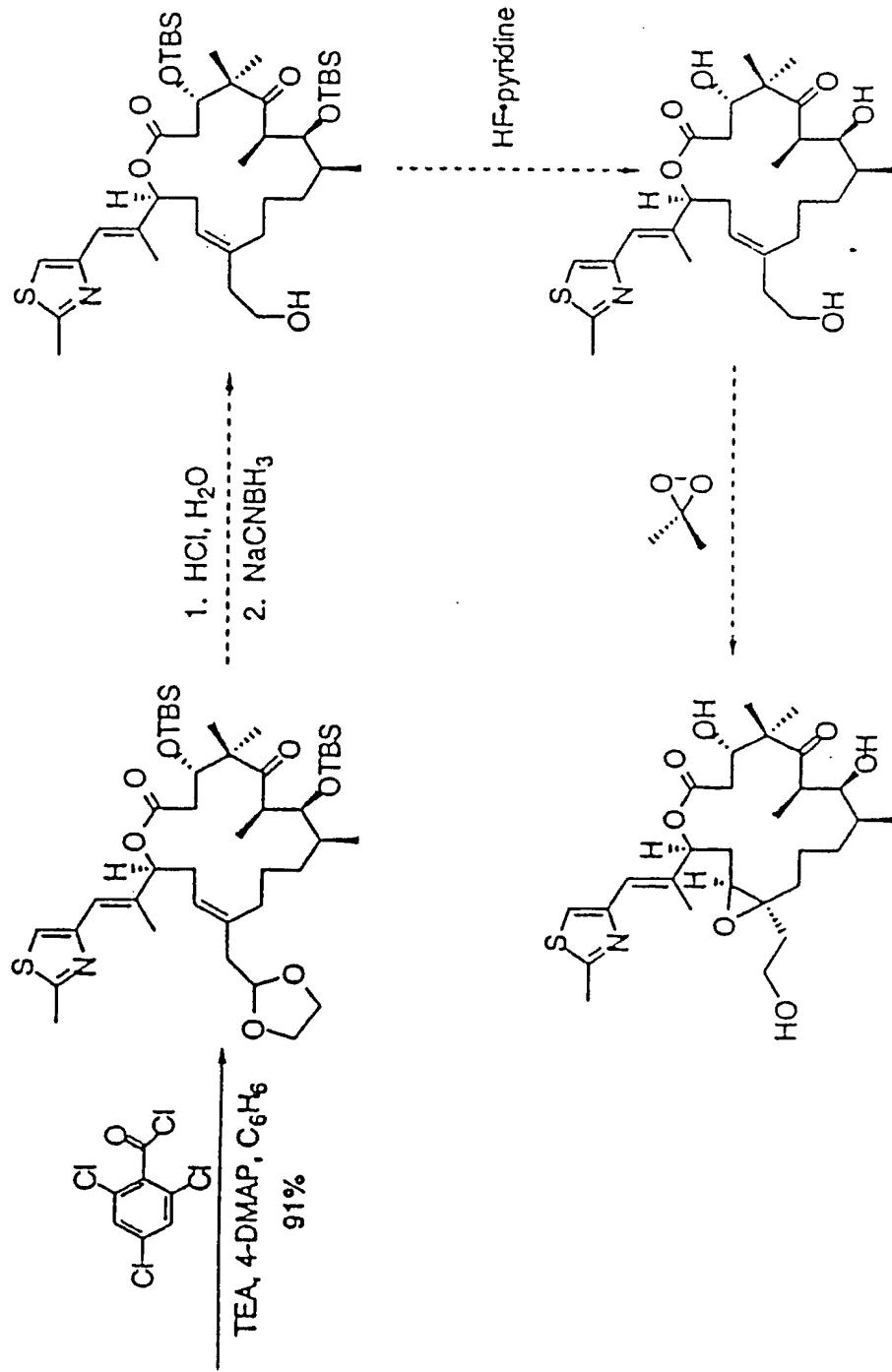


FIG. 27B



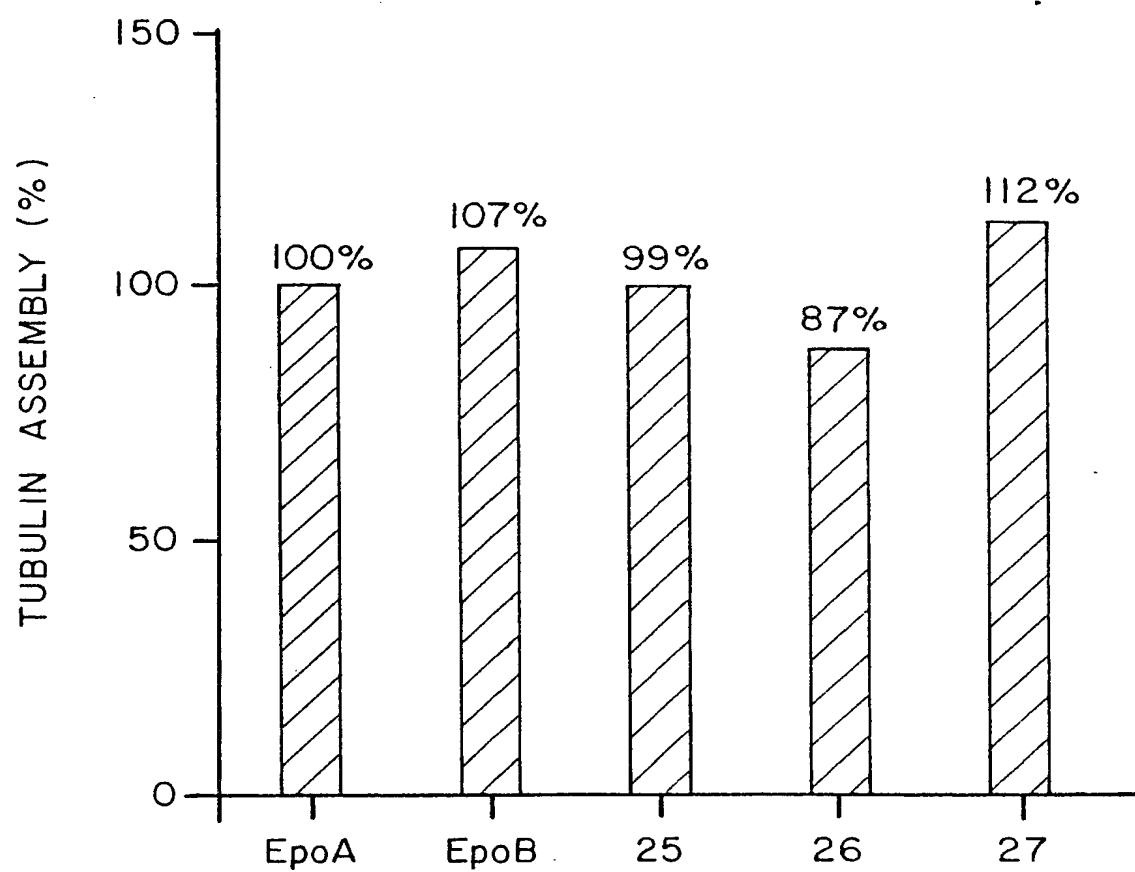
40/76

FIG. 27C



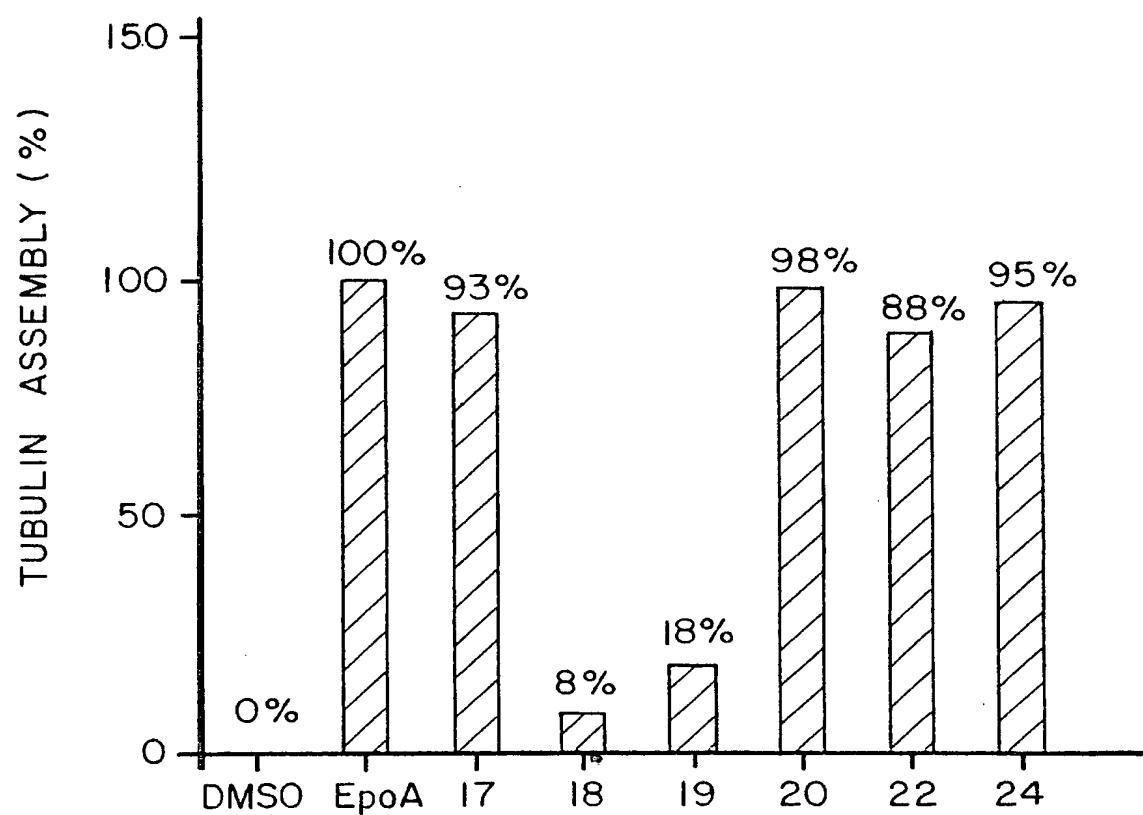
41/76

FIG. 28A



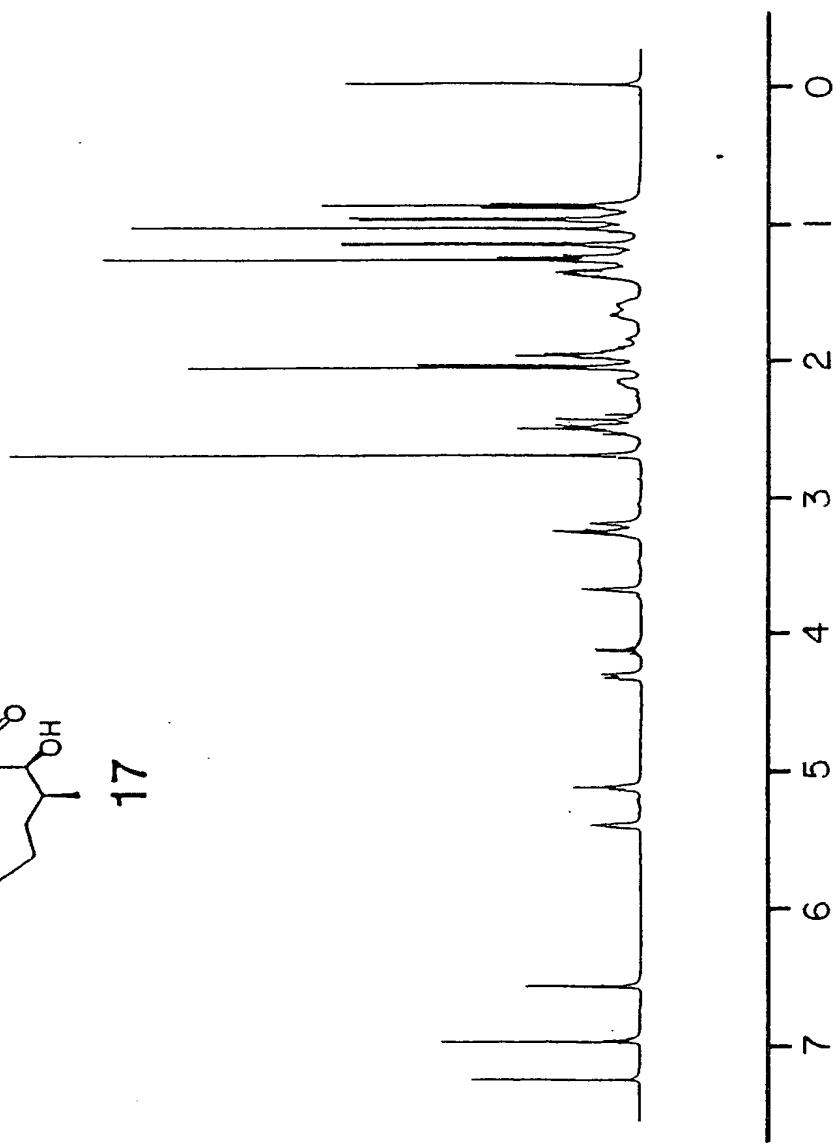
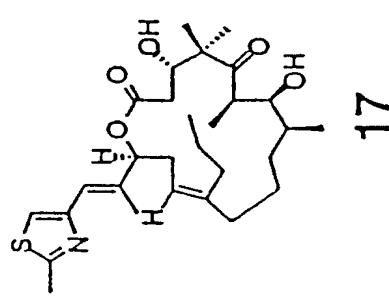
42/76

FIG. 28B



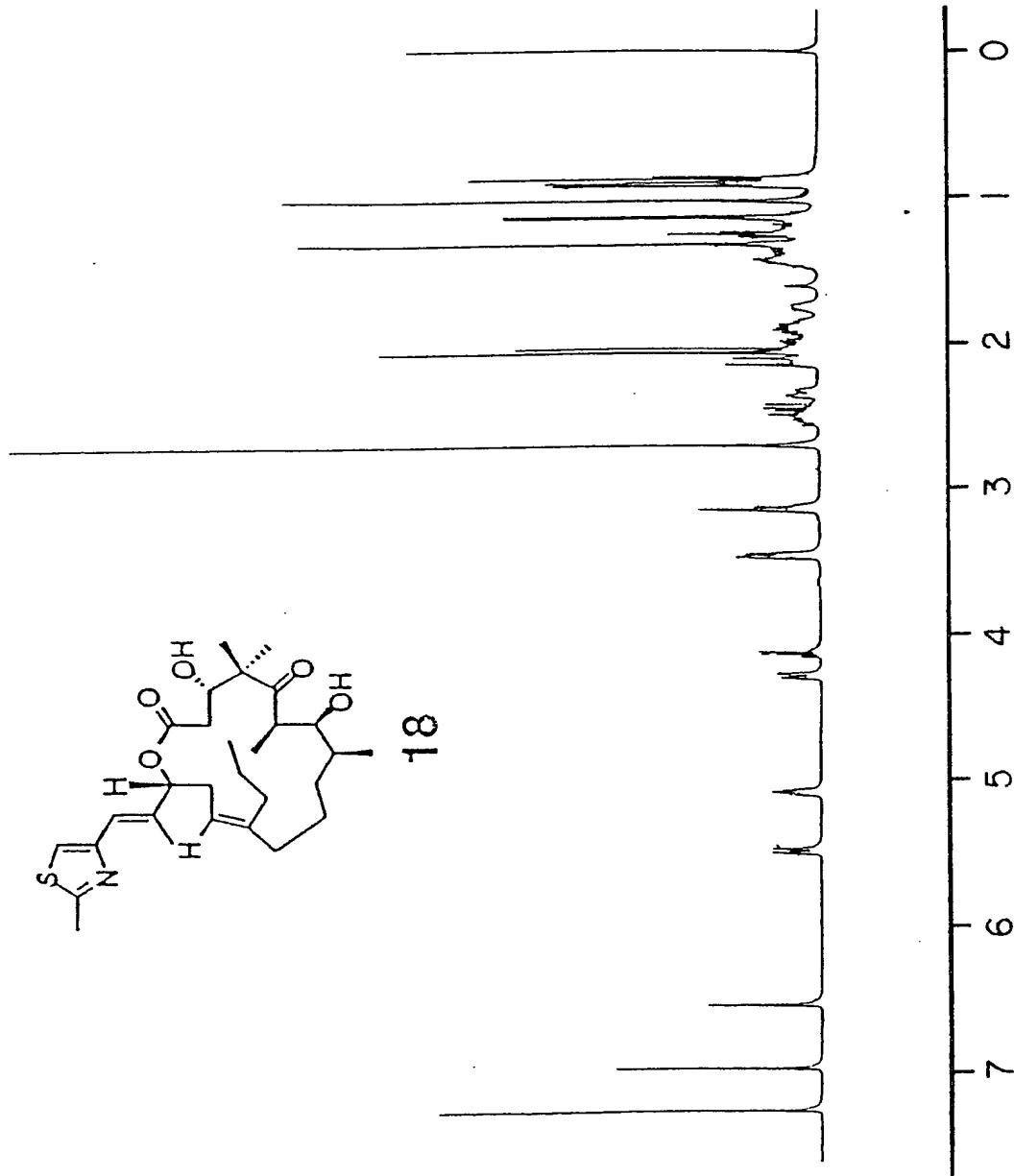
43/76

FIG. 29



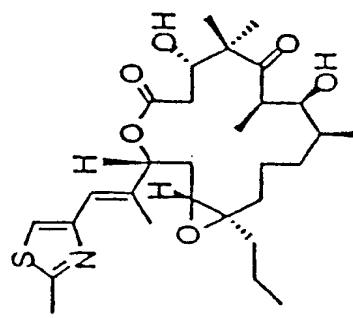
44/76

FIG. 30

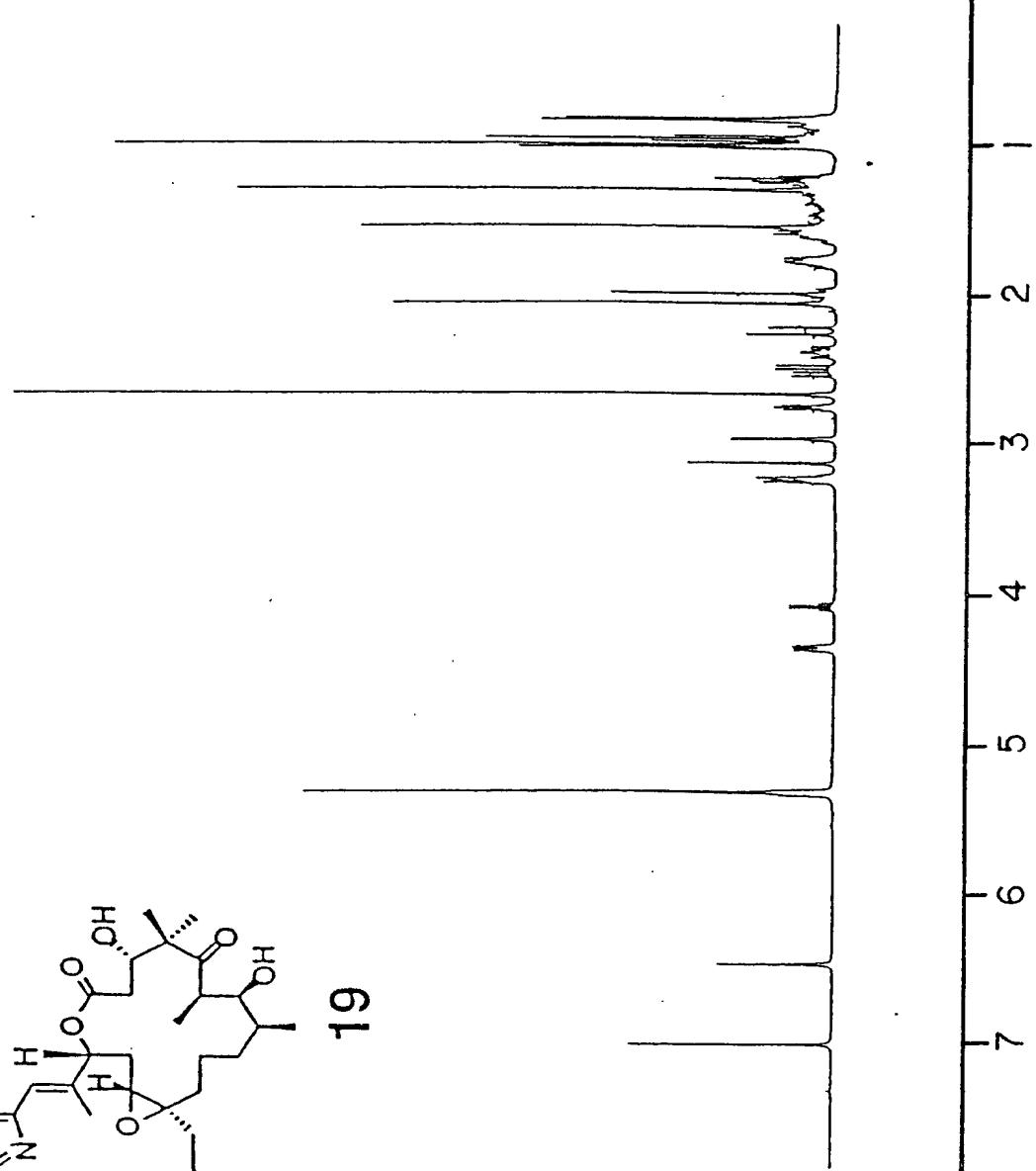


45/76

FIG. 31

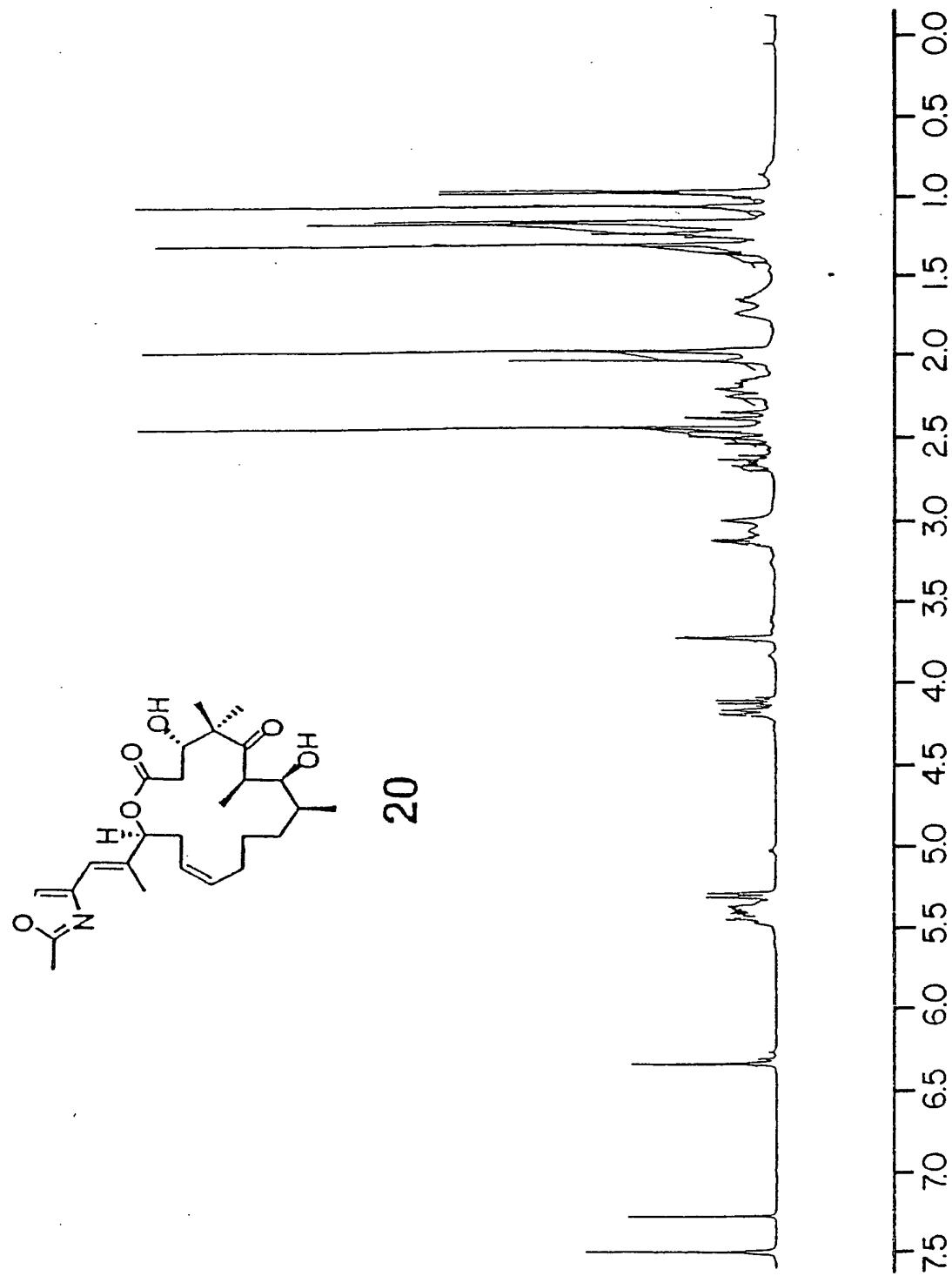


19



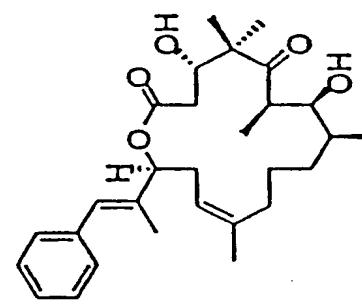
46/76

FIG. 32

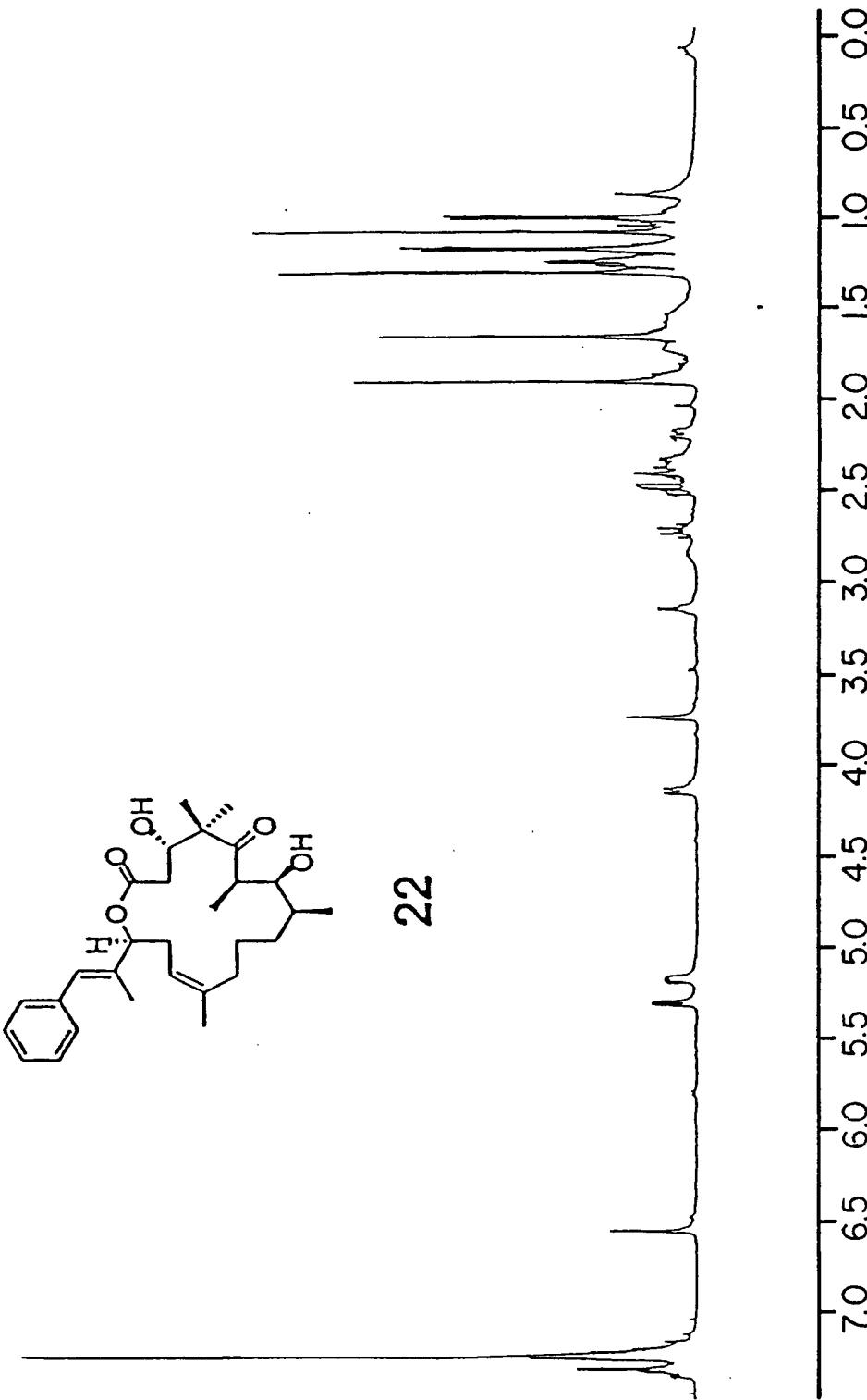


47/76

FIG. 33

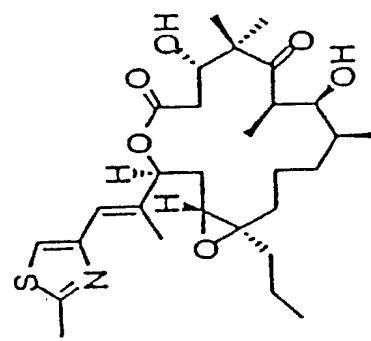


22

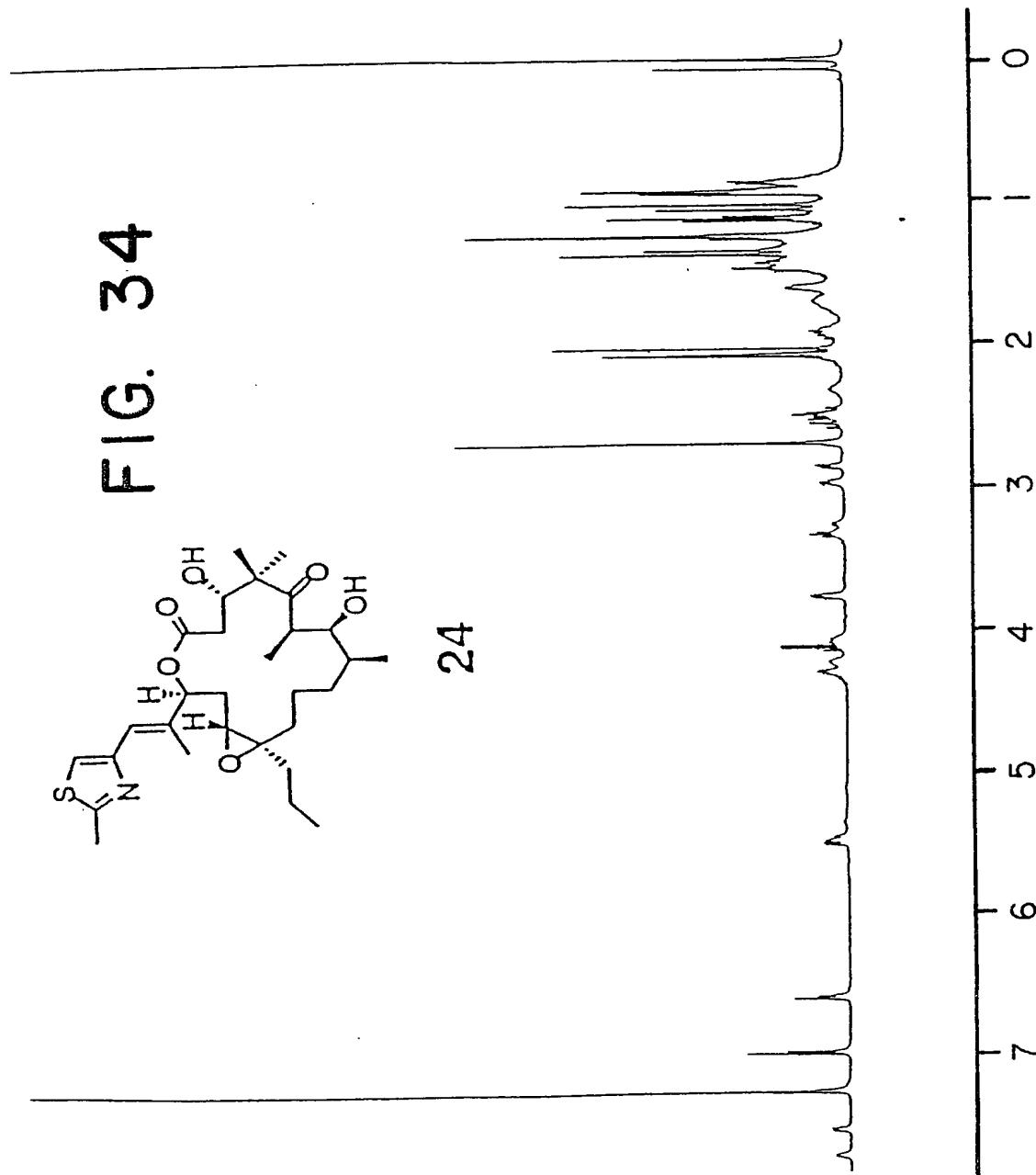


48/76

FIG. 34.



24



49/76

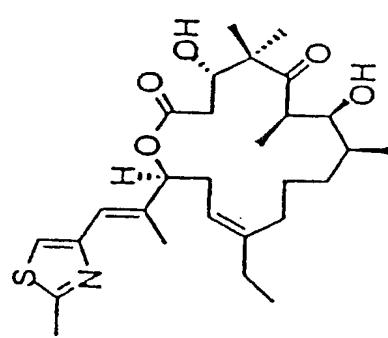
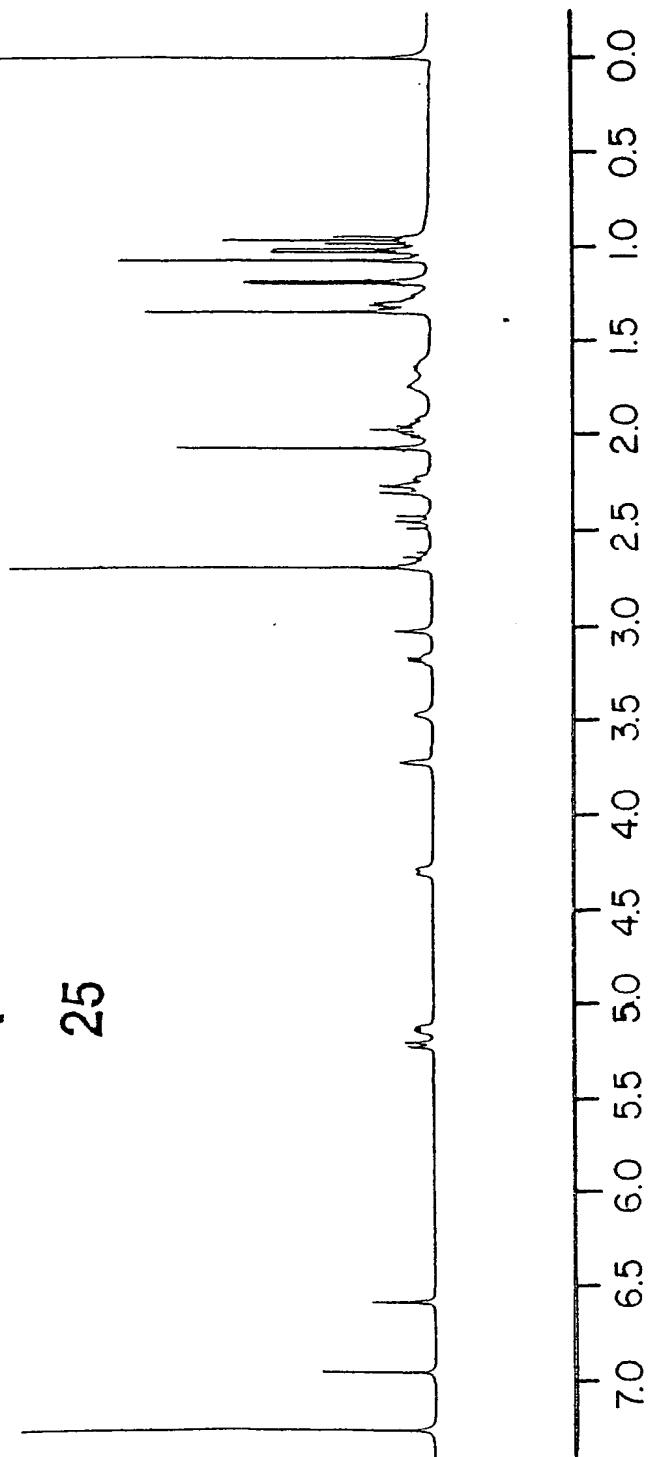
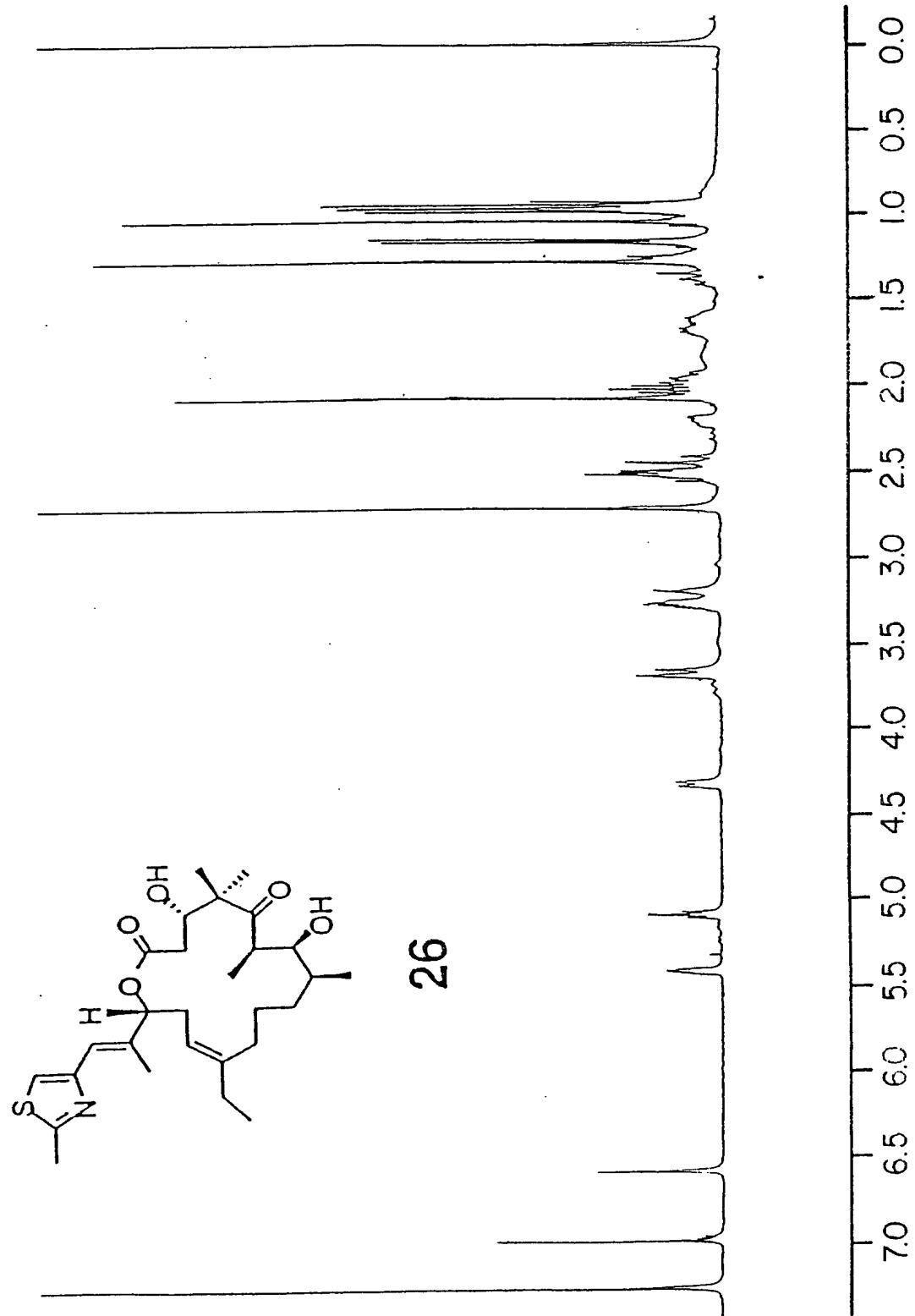


FIG. 35

50/76

FIG. 36



51/76

FIG. 37

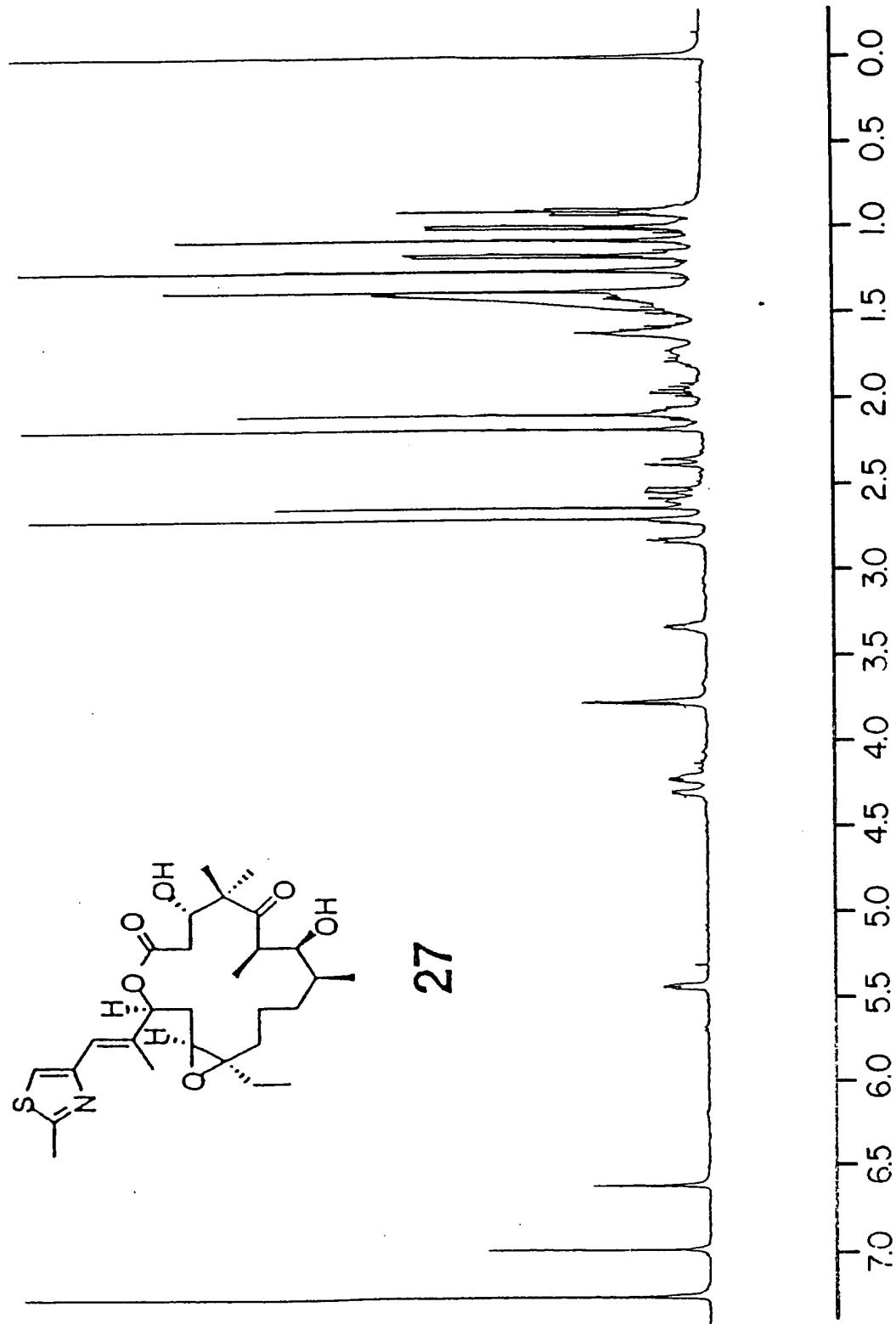


FIG. 38

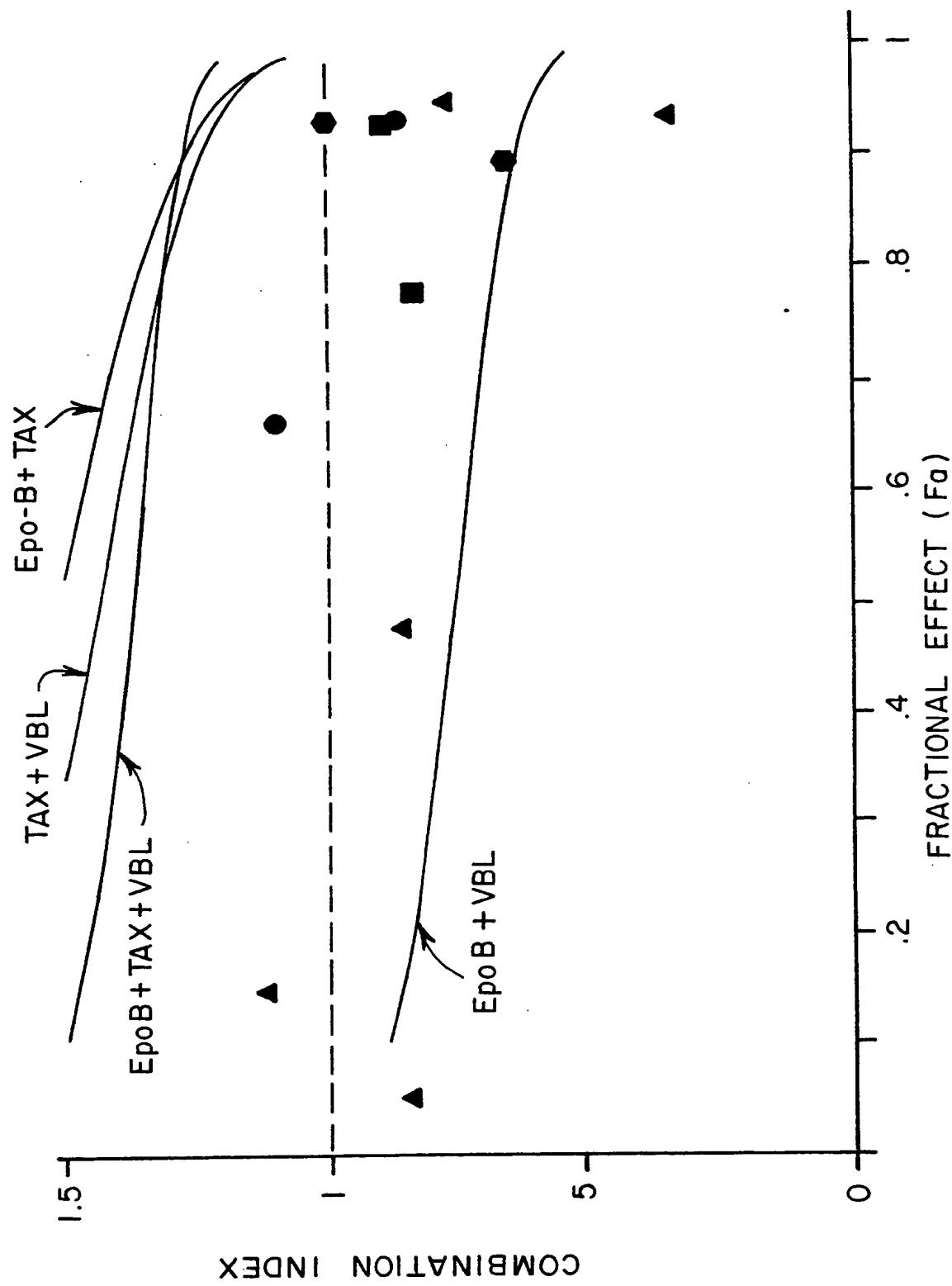


FIG. 39A

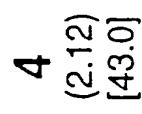
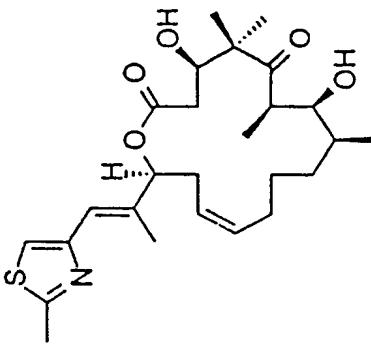
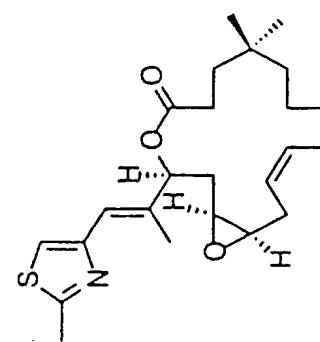
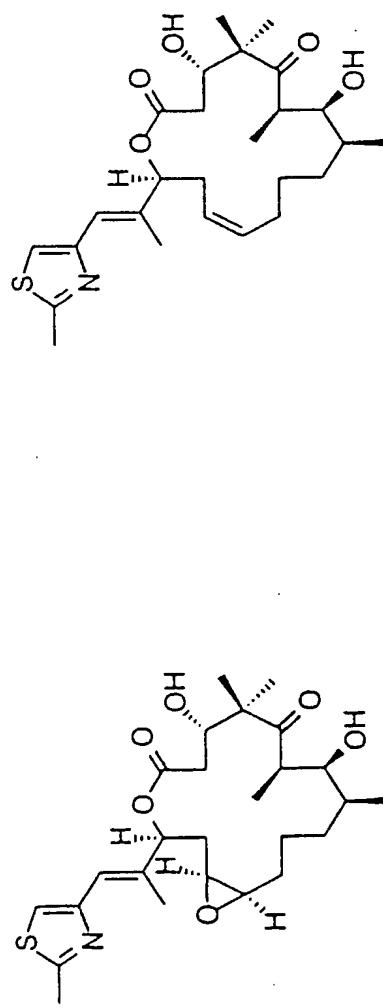


FIG. 39B

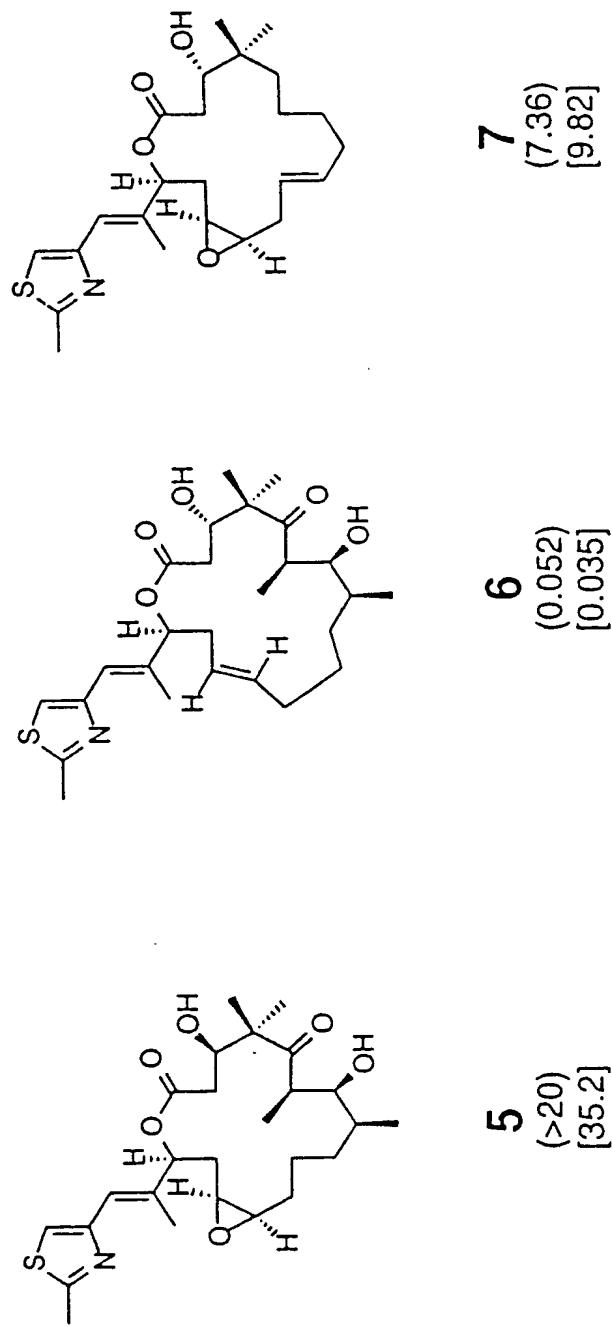


FIG. 40A

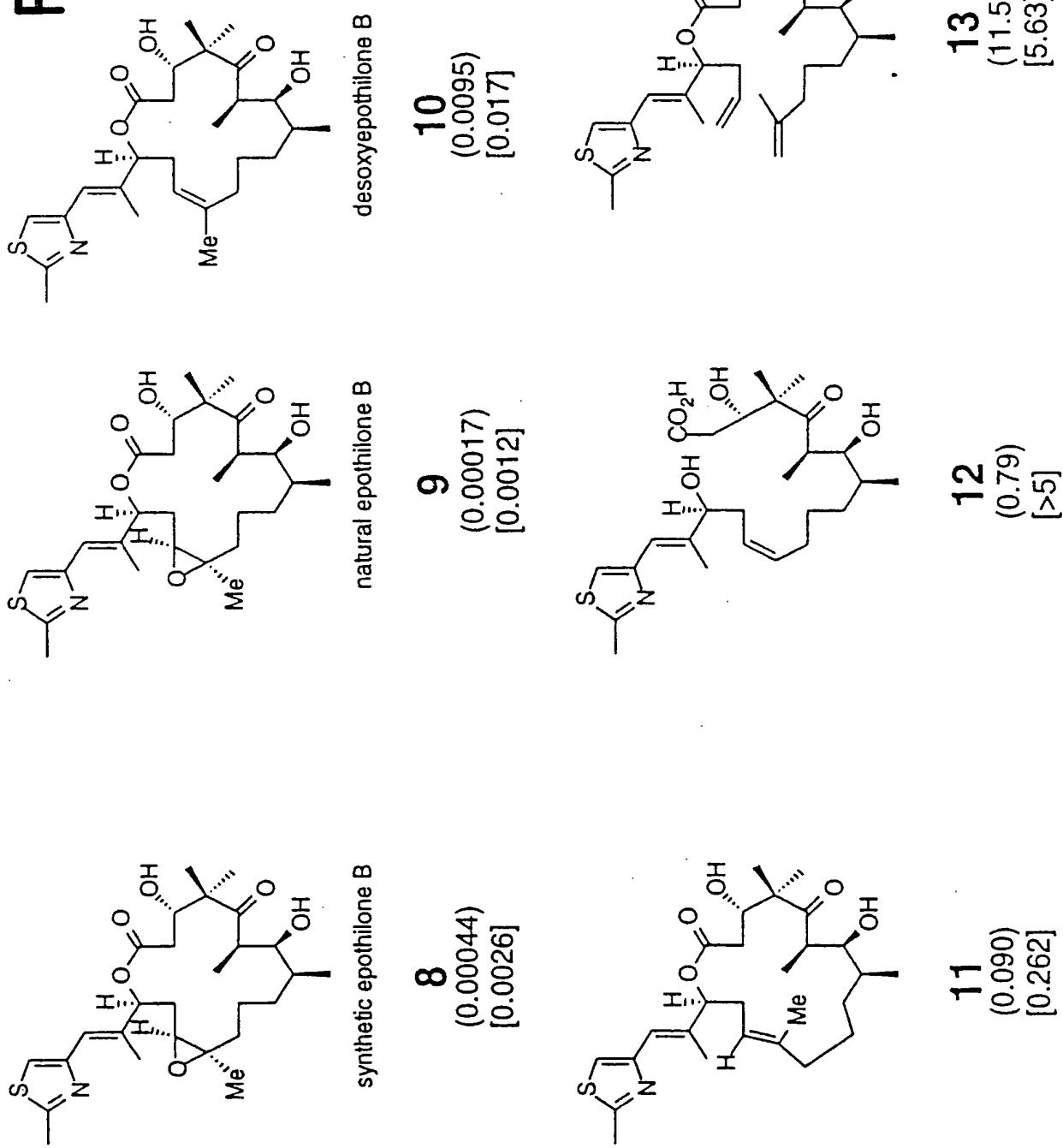


FIG. 40 B

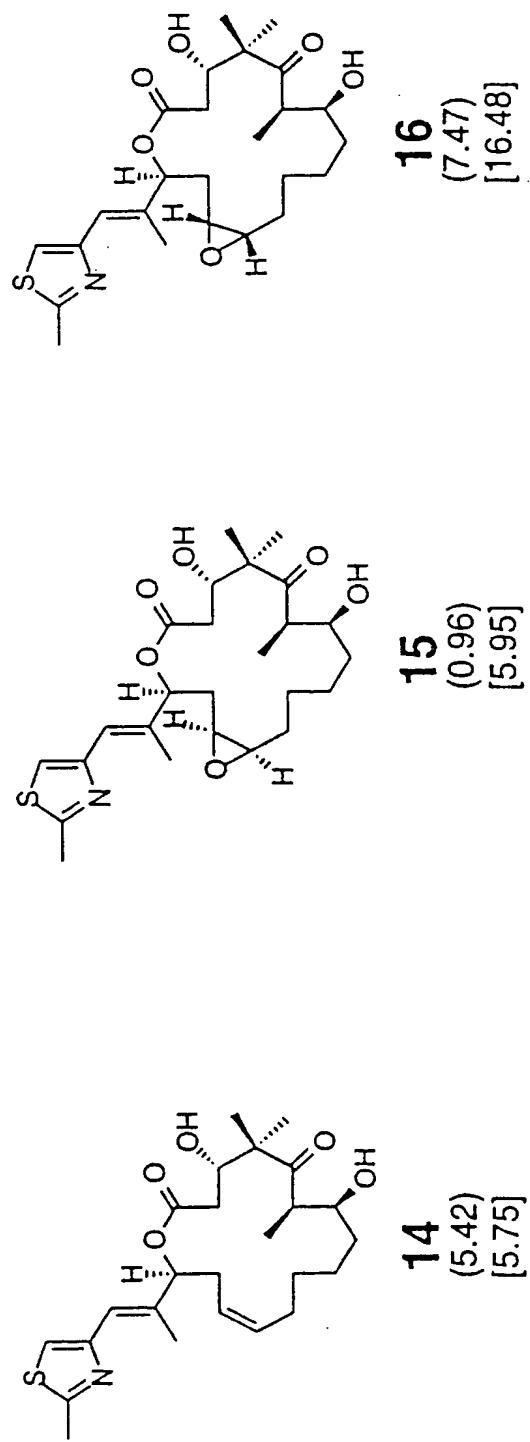
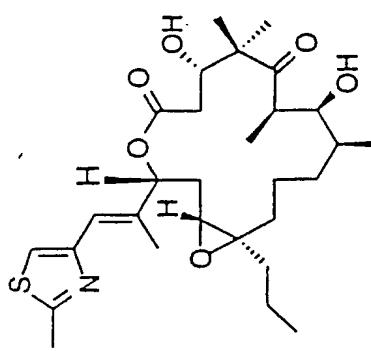
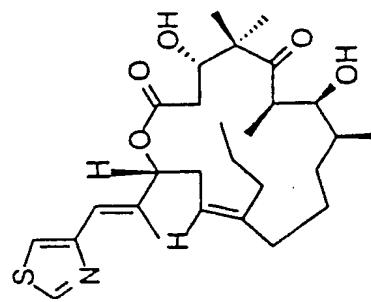


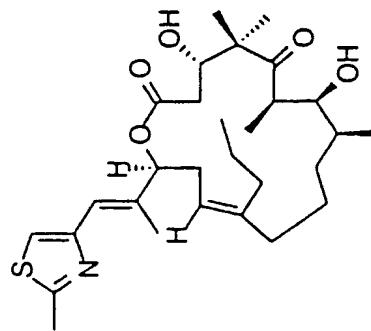
FIG. 4 | A



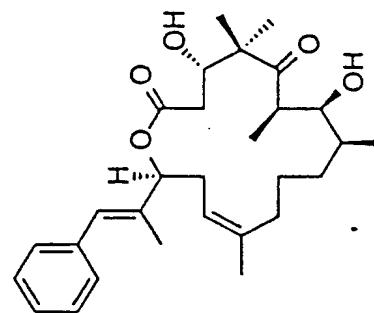
17
(0.090)
[0.254]



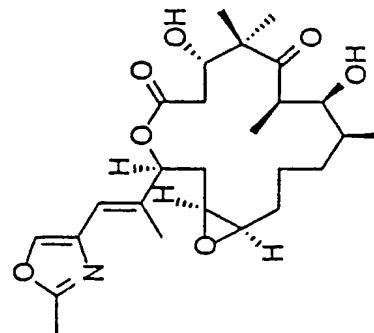
18
(1158)
[>720]



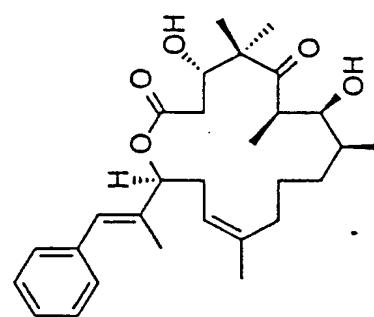
19
(0.96)
[>1.0]



20
(0.030)
[0.049]



21



22
(0.098)
[0.146]

58/76

FIG. 4 | B

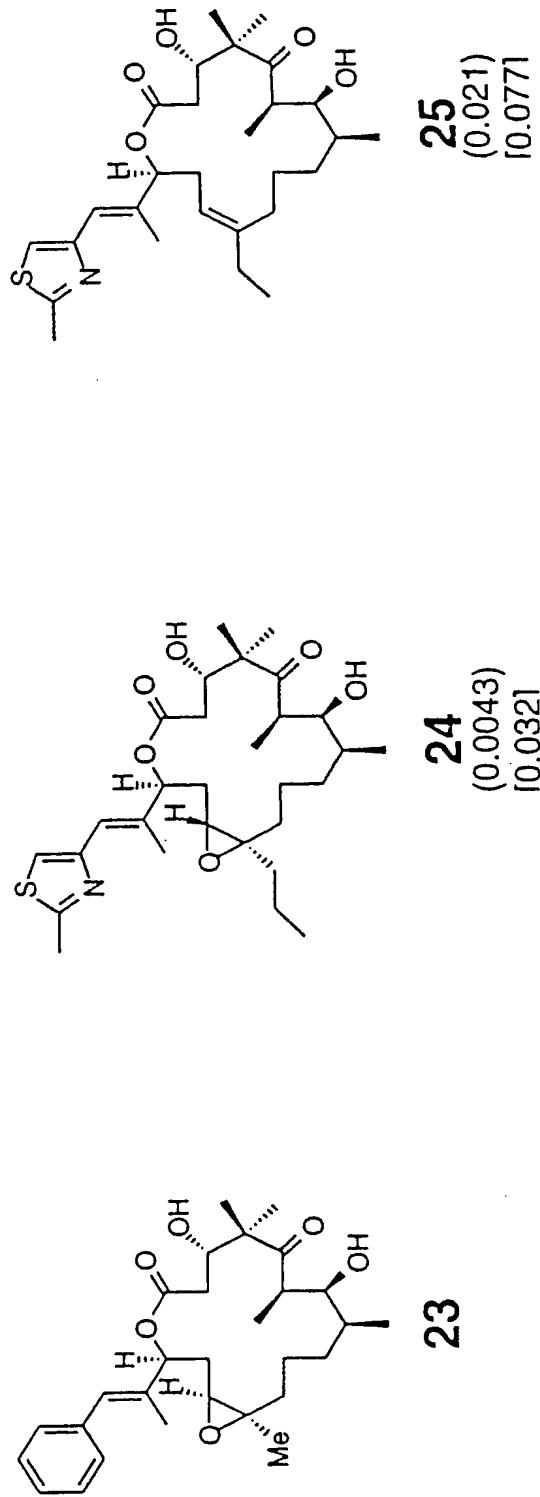
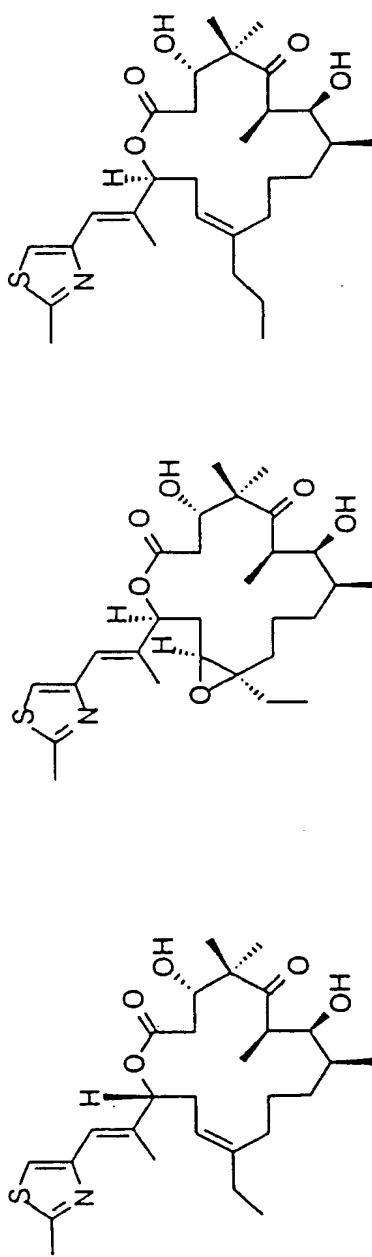
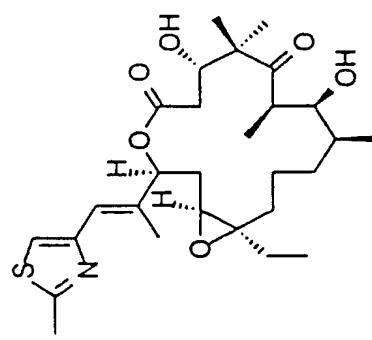


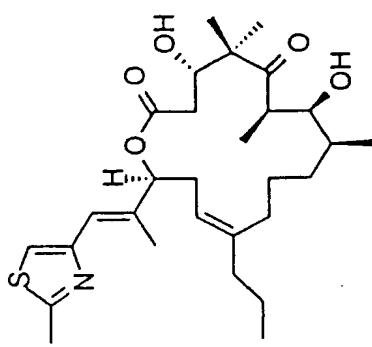
FIG. 42A



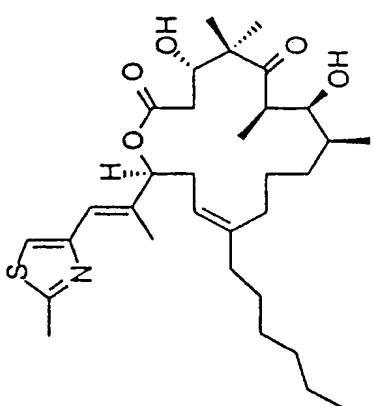
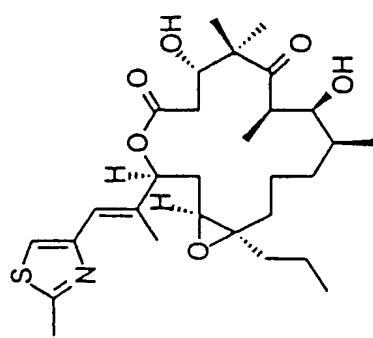
27
(0.0010)
[0.0072]



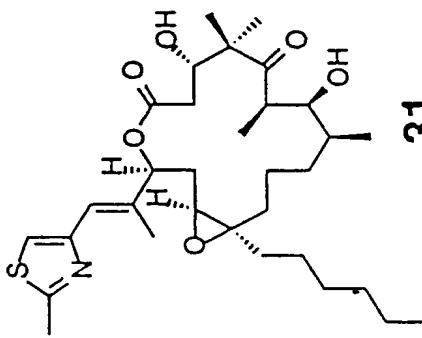
28
(0.039)
[0.067]



29
(0.0038)
[0.0064]



30
(0.044)
[0.108]



31
(0.027)
[0.049]

60/76

FIG. 42 B

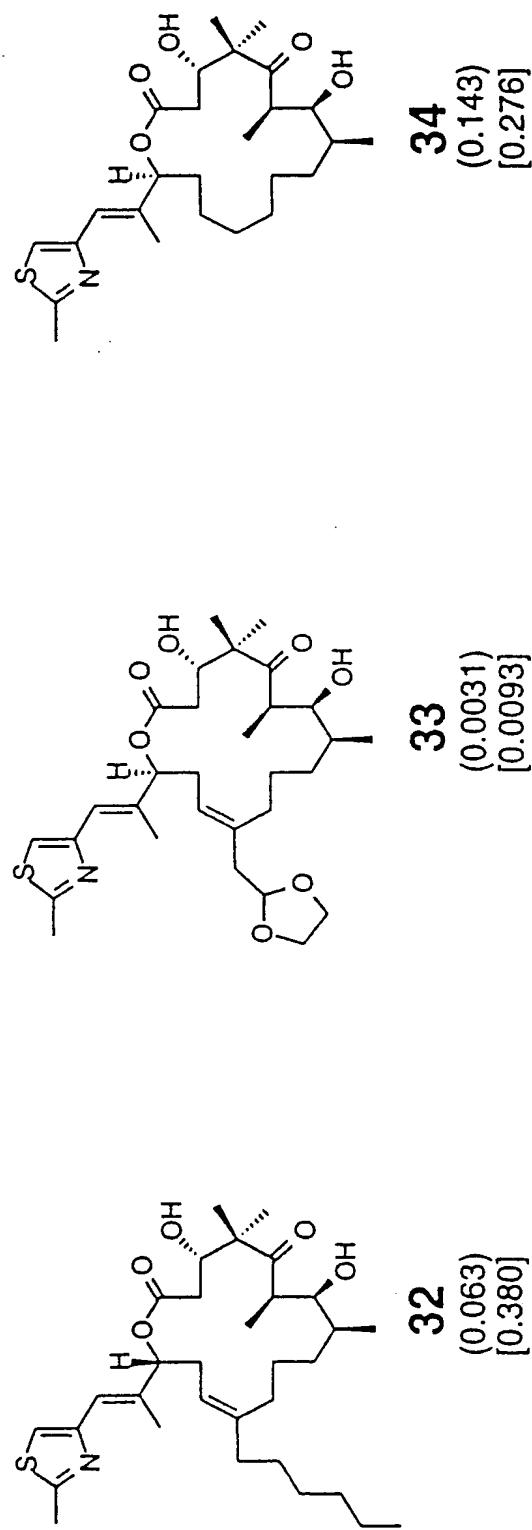


FIG. 42 C

61/76

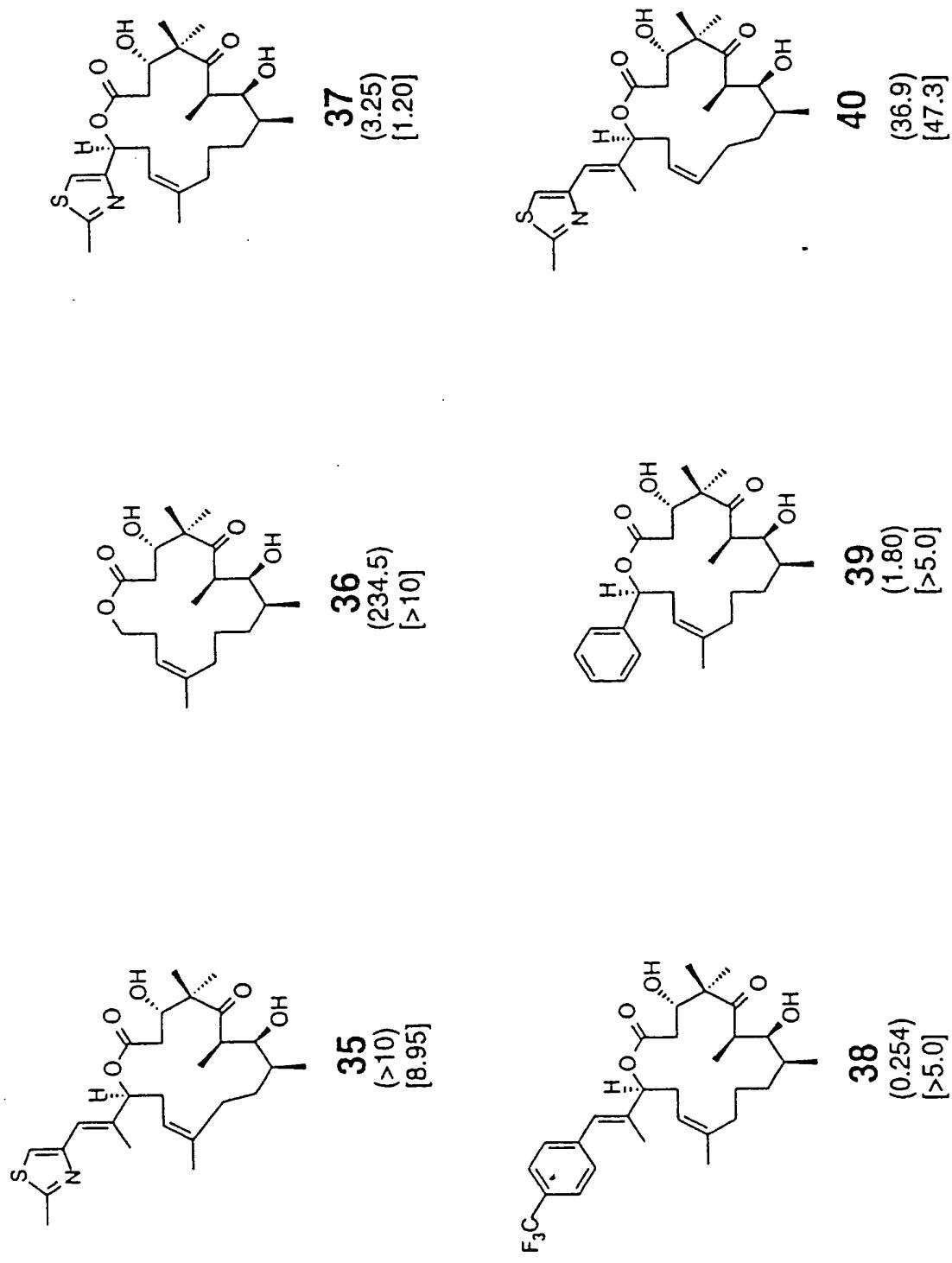
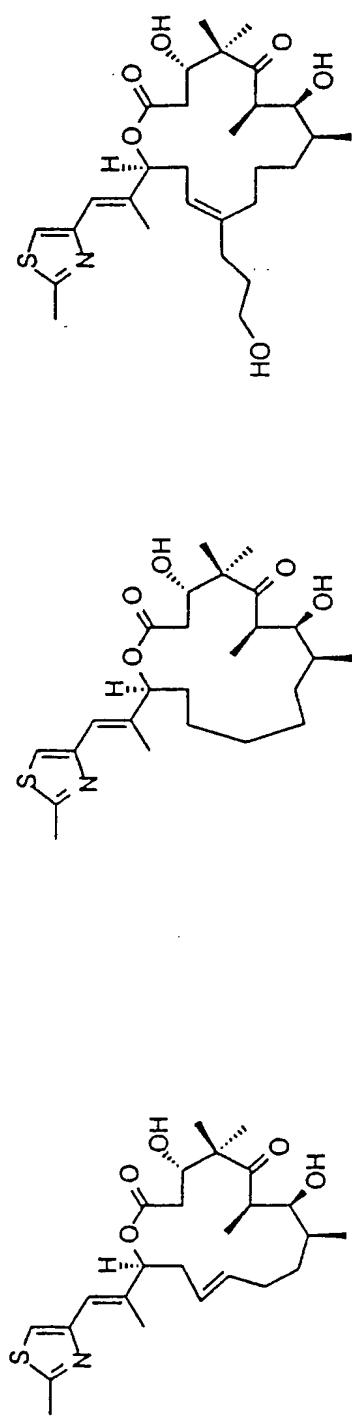
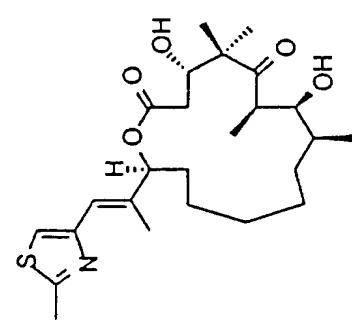


FIG. 42 D

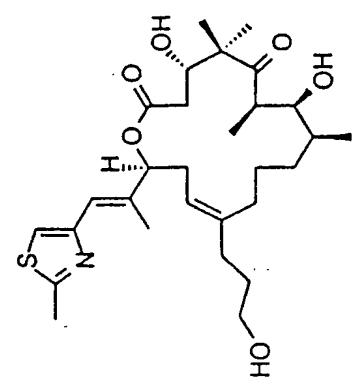
62/76



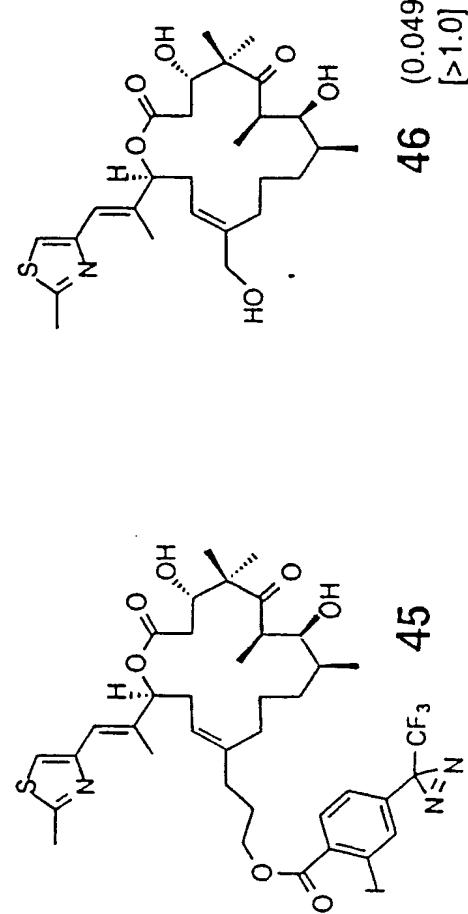
41
(60.1)
[59.2]



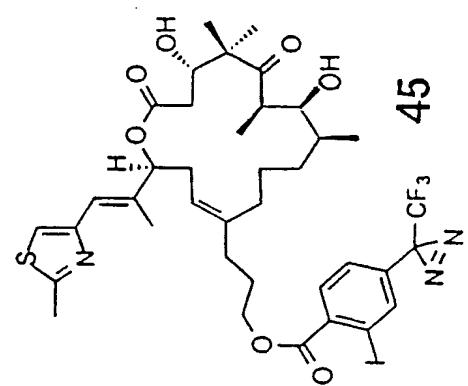
42
(7.41)
[12.9]



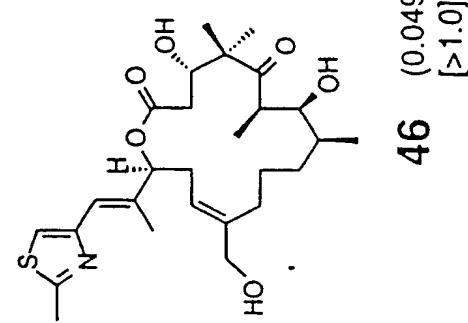
43
(0.0095)
[0.167]



44 (0.250)
[0.905]

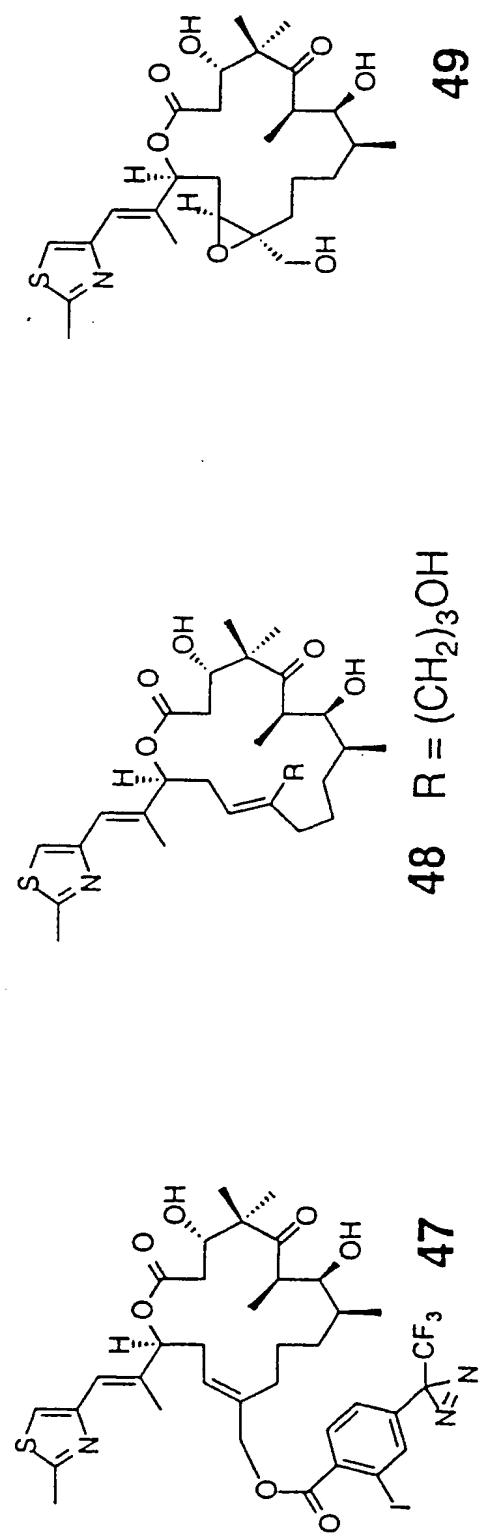


45 (0.049)
[>1.0]



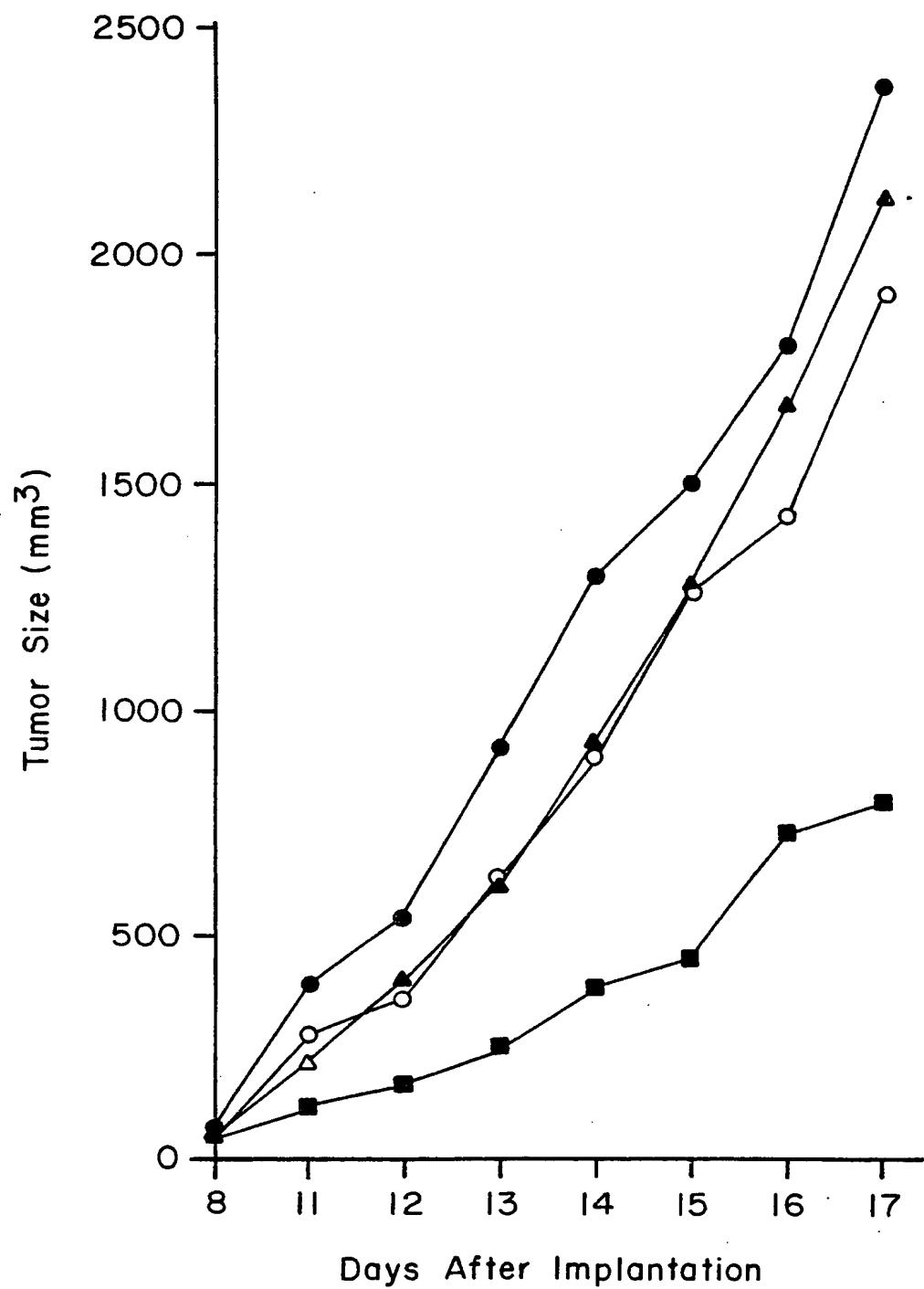
46 (0.049)
[>1.0]

FIG. 42 E



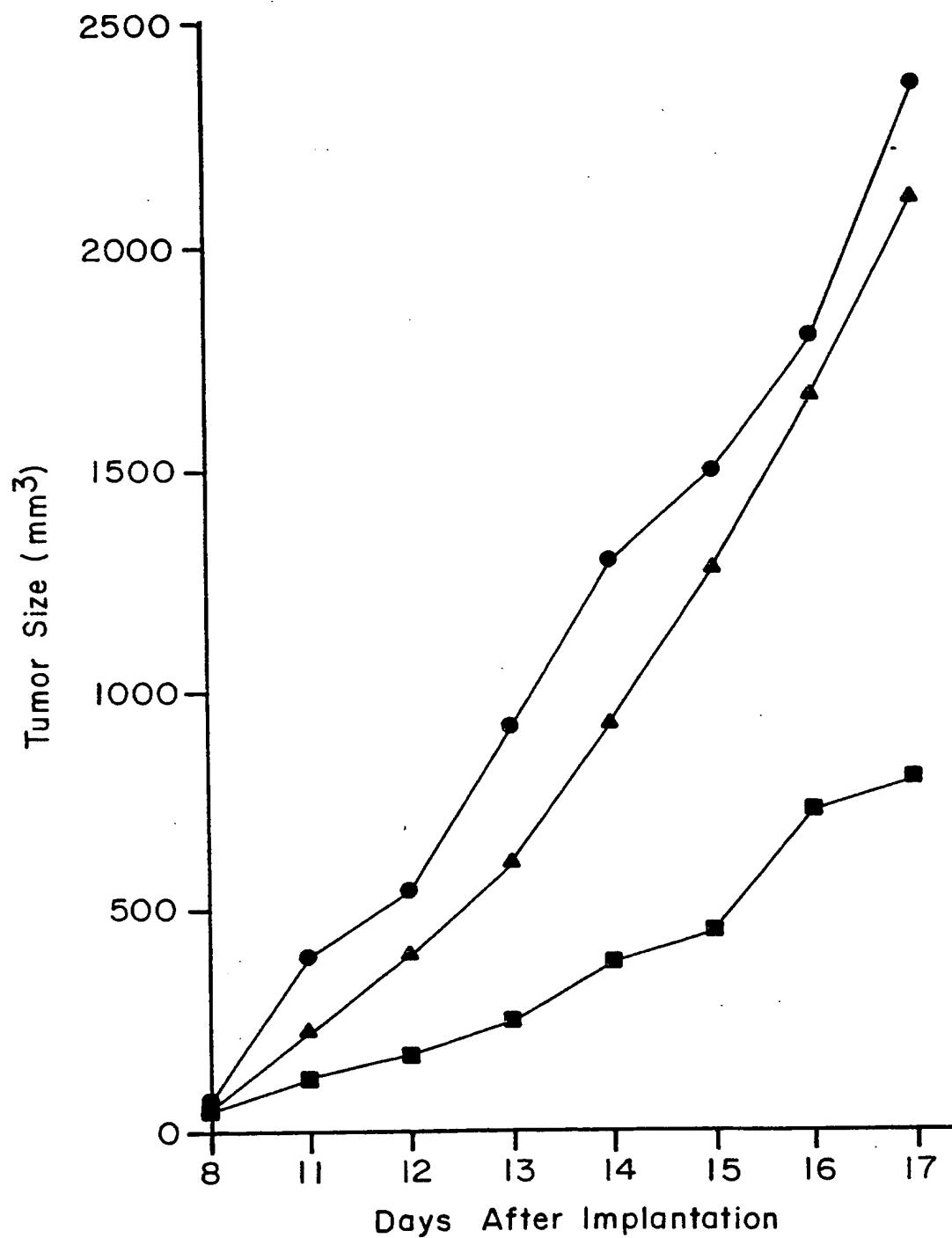
64/76

FIG. 43A



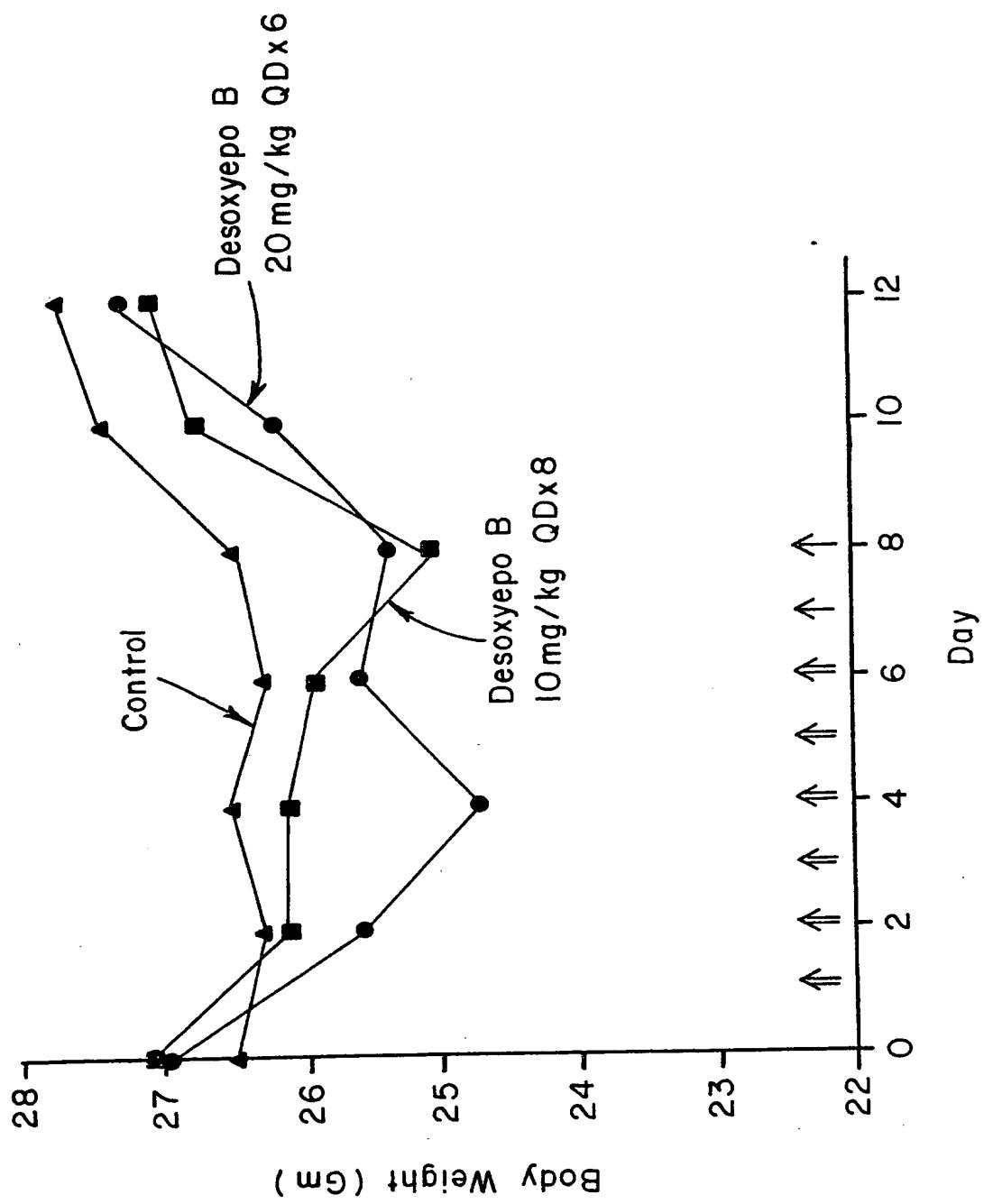
65/76

FIG. 43B



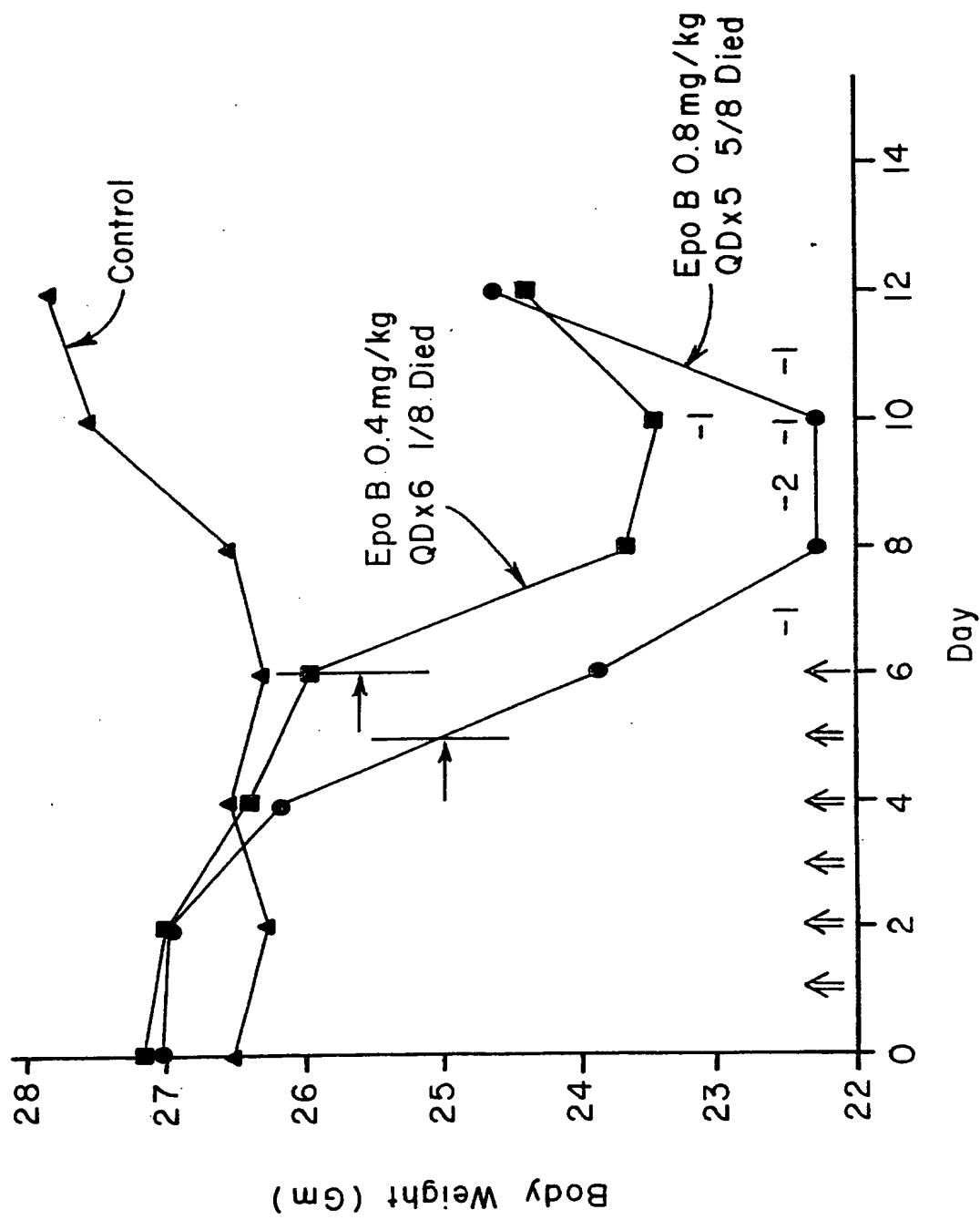
66/76

FIG. 44A



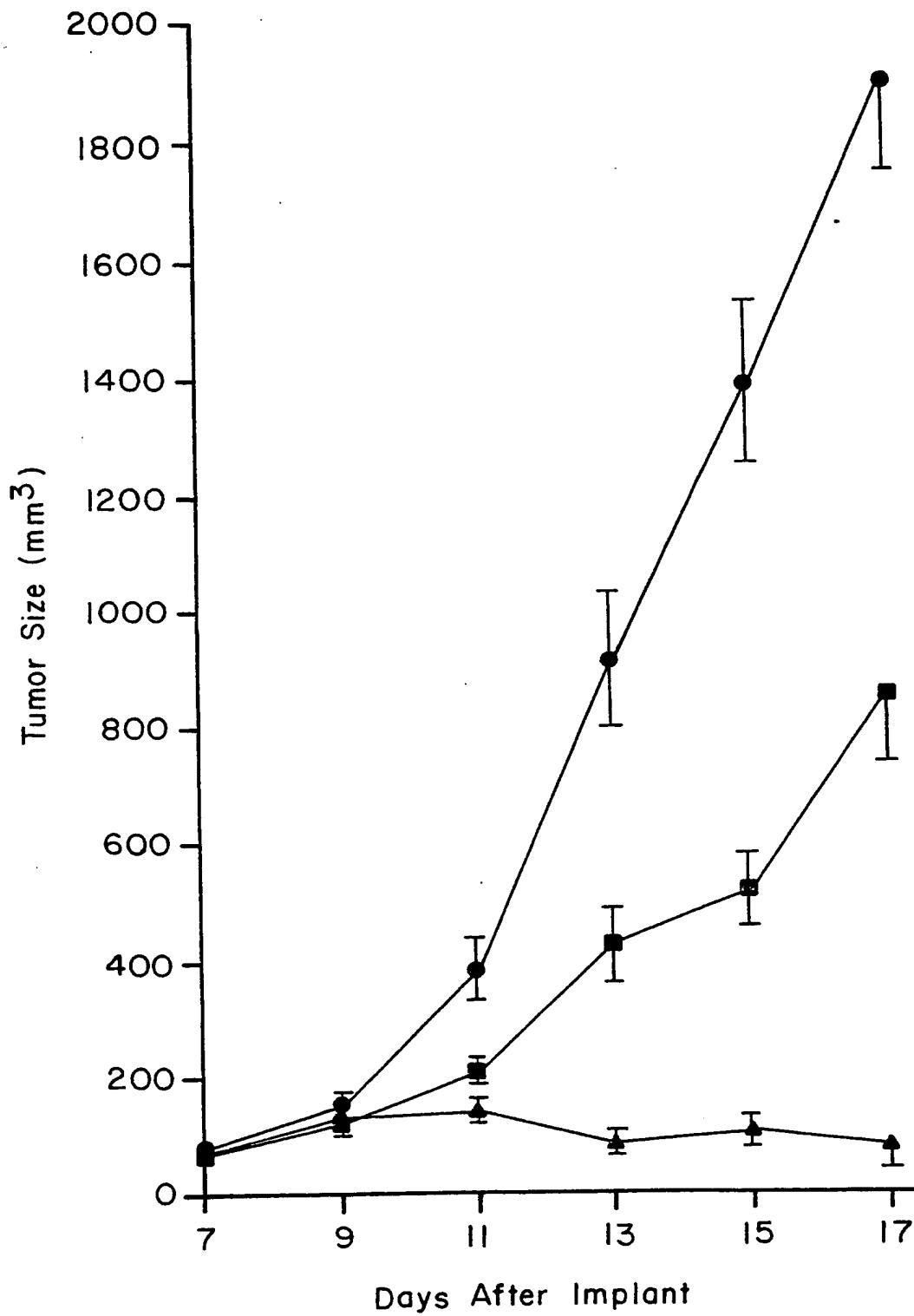
67/76

FIG. 44 B



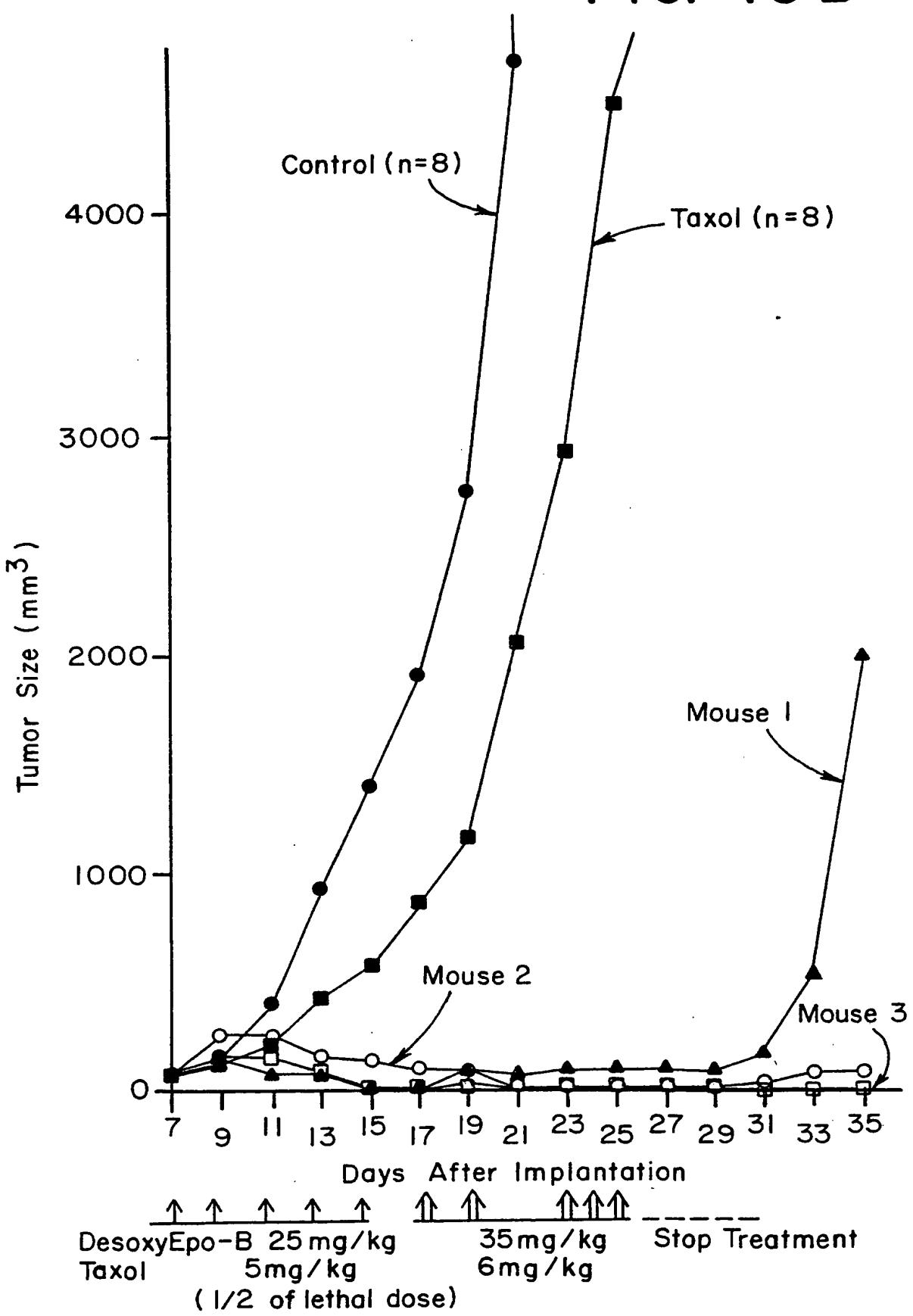
68/76

FIG. 45A



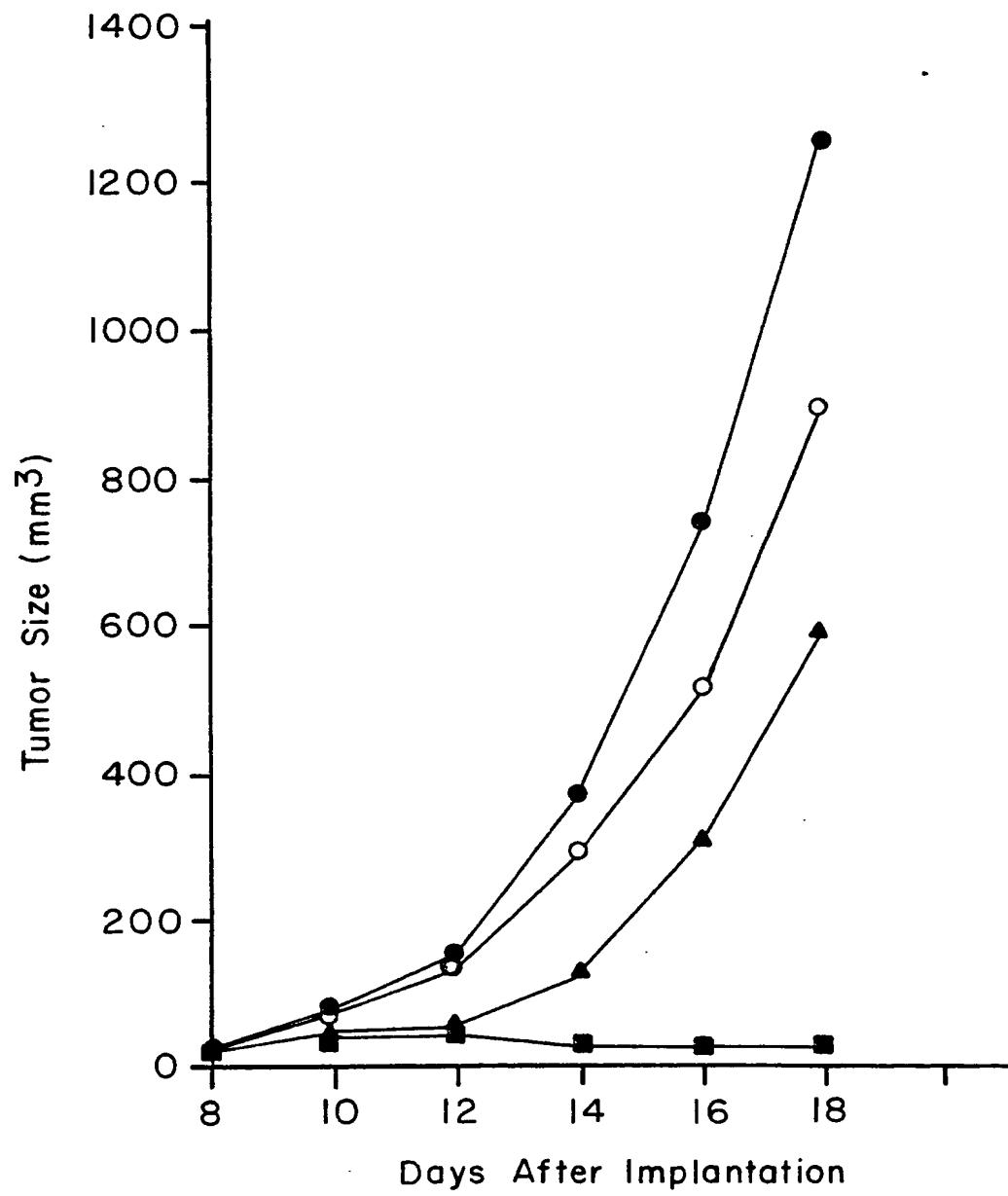
69/76

FIG. 45 B



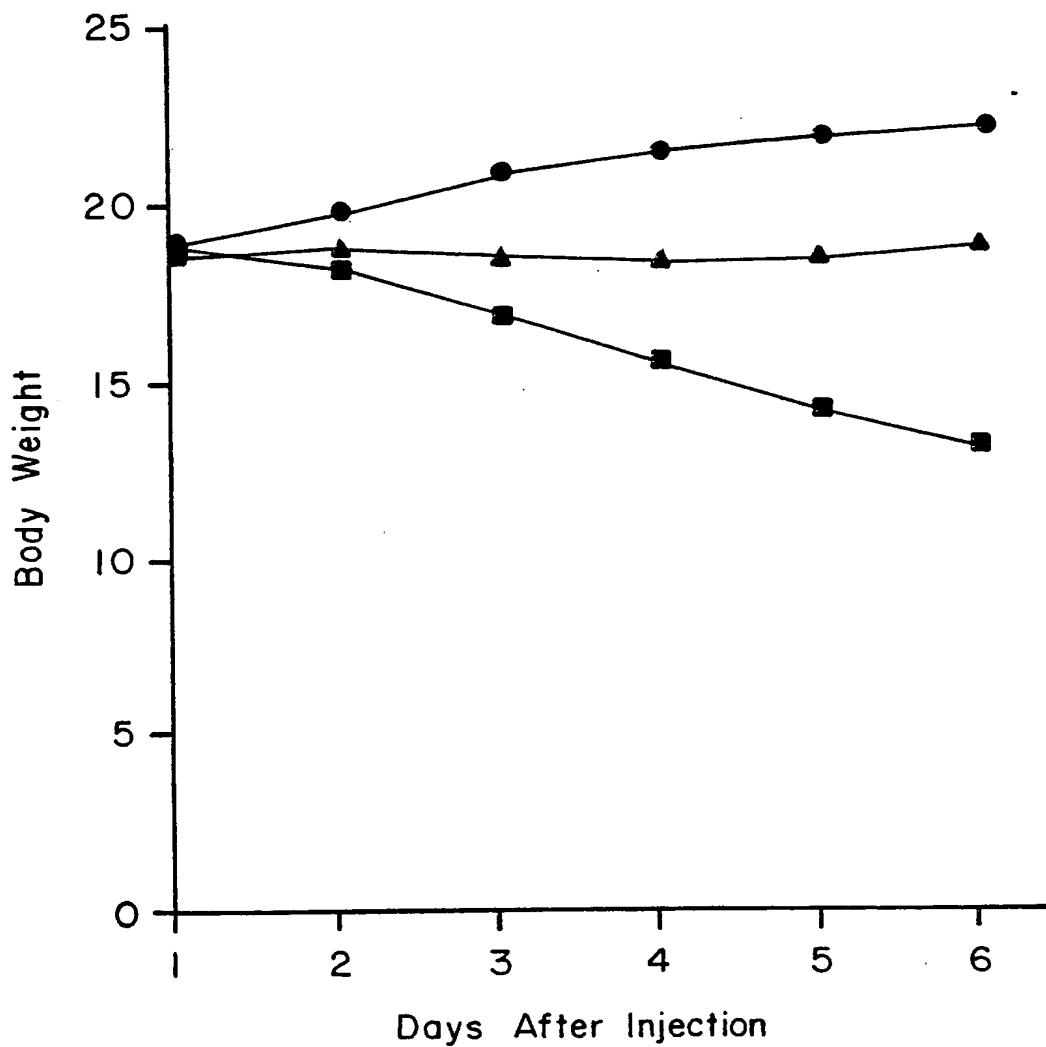
70/76

FIG. 46



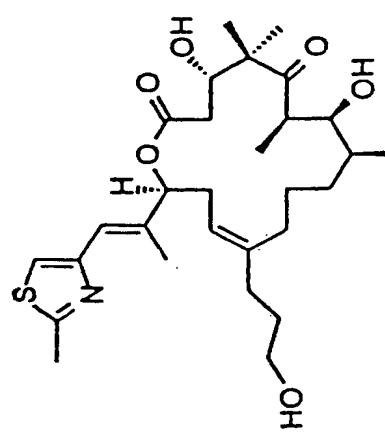
71/76

FIG. 47

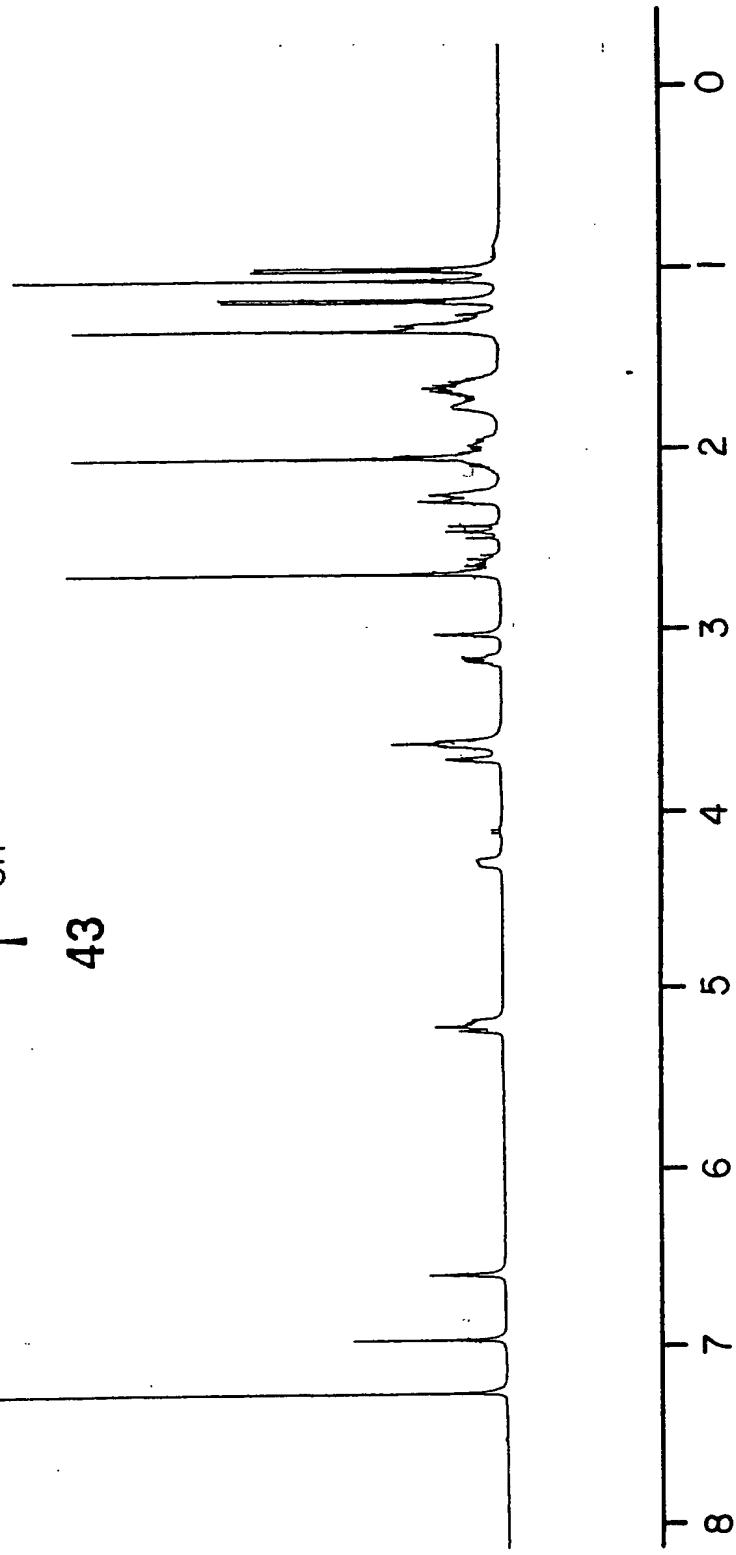


72/76

FIG. 48

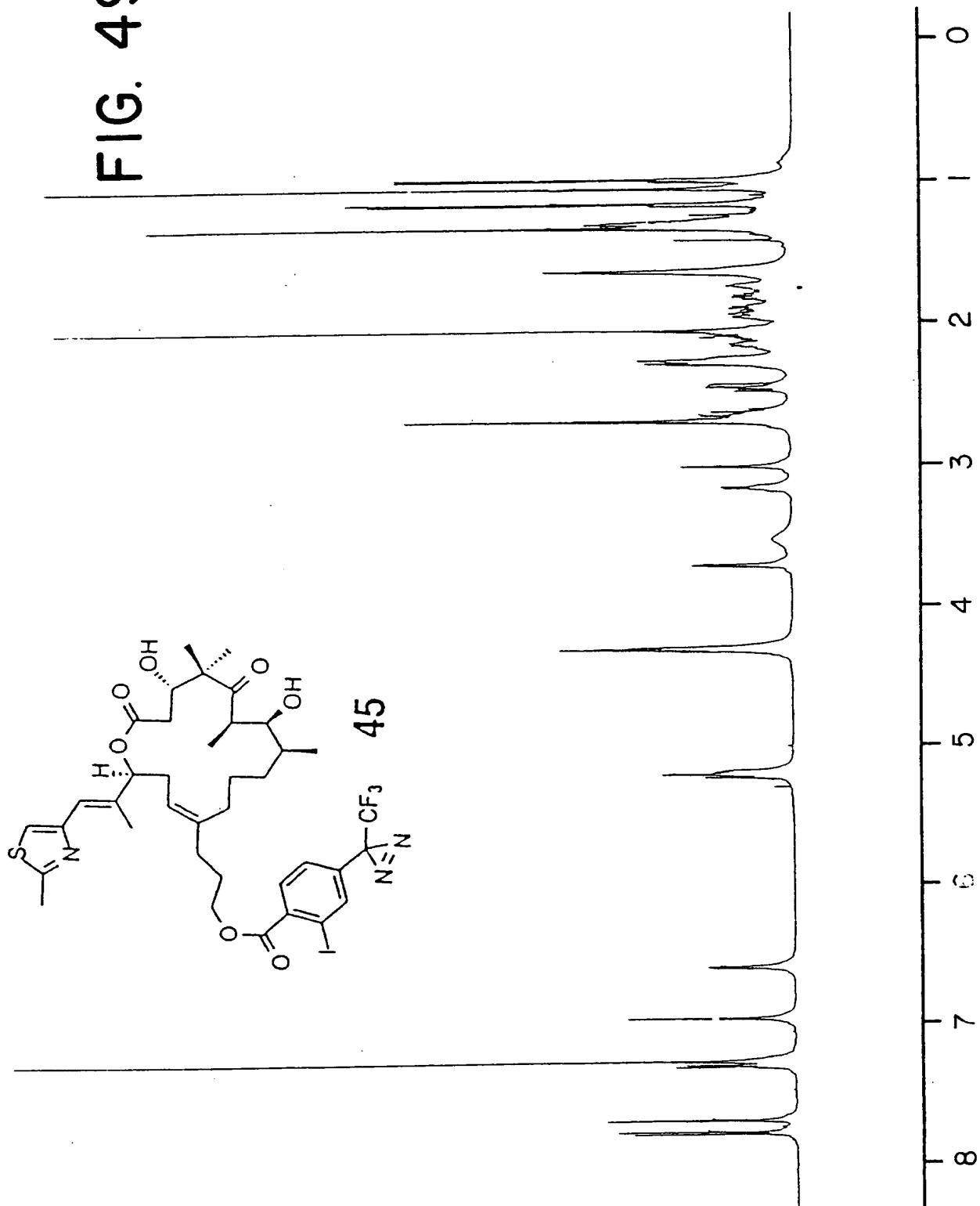


43

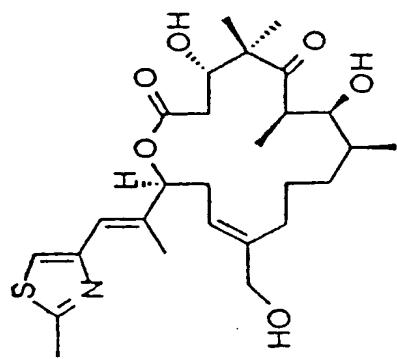


73/76

FIG. 49

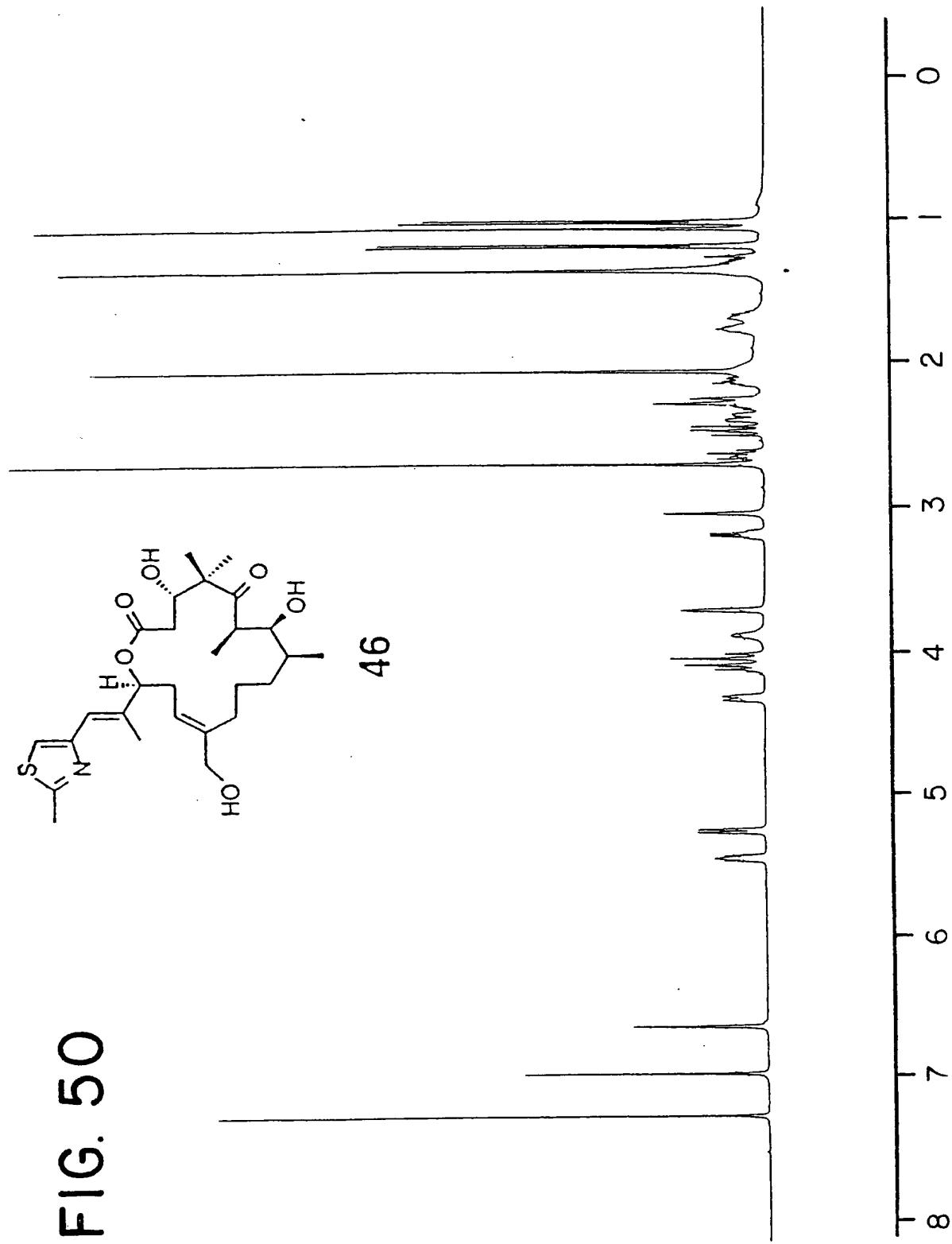


74/76



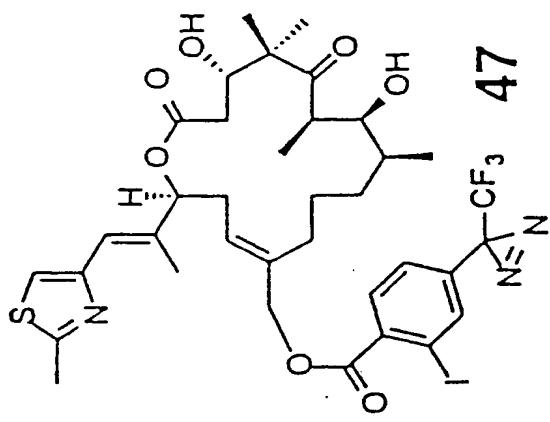
46

FIG. 50



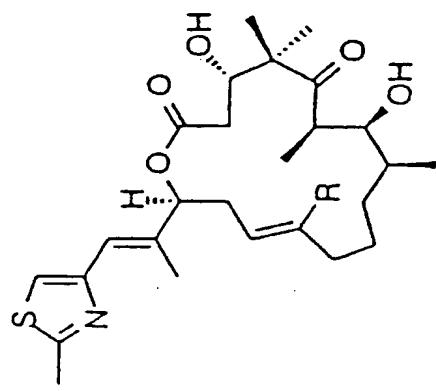
75/76

FIG. 5I



76/76

FIG. 52



48 R = (CH₂)₃OH

